SV2000

SERVICE MANUAL

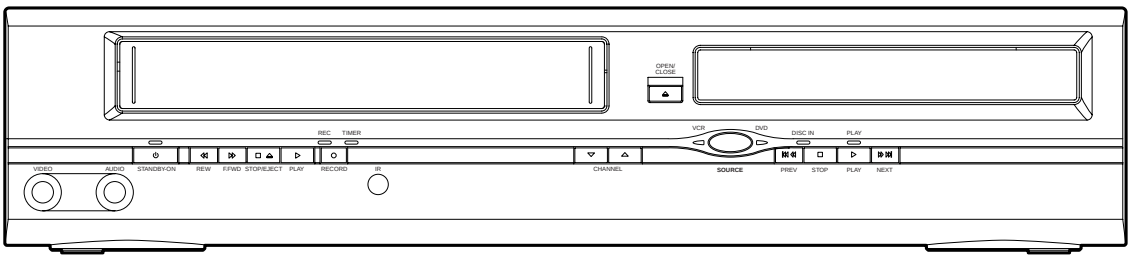
Main Section
- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA's
- Exploded Views
- Parts List

When servicing the deck mechanism, refer to MK14 Deck Mechanism Section.

Deck Mechanism Part No.: N2440FL

DVD PLAYER & VIDEO CASSETTE RECORDER

CWV806



IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

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MAIN SECTION

DVD PLAYER & VIDEO CASSETTE RECORDER

CWV806

Main Section
- **Specifications**
- **Preparation for Servicing**
- **Adjustment Procedures**
- **Schematic Diagrams**
- **CBA's**
- **Exploded Views**
- **Parts List**

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SPECIFICATIONS

< VCR Section >

Description	Unit	Minimum	Nominal	Maximum	Remark
1. Video					
1-1. Video Output (PB)	Vp-p	0.8	1.0	1.2	SP Mode
1-2. Video Output (R/P)	Vp-p	0.8	1.0	1.2	
1-3. Video S/N Y (R/P)	dB	40	45		SP Mode, W/O Burst
1-4. Video Color S/N AM (R/P)	dB	35	41		SP Mode
1-5. Video Color S/N PM (R/P)	dB	33	36		SP Mode
1-6. Resolution (PB)	Line	230	245		SP Mode
2. Servo					
2-1. Jitter Low	μsec		0.07	0.12	SP Mode
2-2. Wow & Flutter	%		0.3	0.5	SP Mode
3. Normal Audio					
3-1. Output (PB)	dBV	-9	-6	-3	SP Mode
3-2. Output (R/P)	dBV	-9	-6	-1.5	SP Mode
3-3. S/N (R/P)	dB	36	41		SP Mode
3-4. Distortion (R/P)	%		1.0	4.0	SP Mode
3-5. Freq. resp (R/P) at 200 Hz	dB	-11	-4		SP Mode
(-20 dB ref. 1 kHz) at 8 kHz	dB	-14	-4		SP Mode
4. Tuner					
4-1. Video output	Vp-p	0.8	1.0	1.2	E-E Mode
4-2. Video S/N	dB	39	42		E-E Mode
4-3. Audio output	dB	-10	-6	-2	E-E Mode
4-4. Audio S/N	dB	40	46		E-E Mode

Note: Nominal specs represent the design specs. All units should be able to approximate these – some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; In no case should a unit fail to meet limit specs.

< DVD Section >

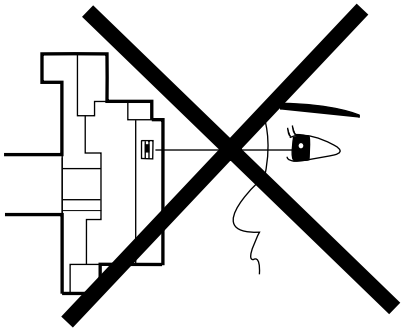
Item	Conditions	Unit	Nominal	Limit
1. Video Output	75 Ω load	Vpp	1.0	± 0.1
2. Coaxial Digital Out	75 Ω load	mVpp	500	± 50
3. Audio (PCM)				
3-1. Output Level	1 kHz, 0 dB, 47k Ω load	Vrms	2.0	
3-2. S/N	47k Ω load	dB	100	
3-3. Freq. Response				
DVD	fs = 48 kHz ± 0.5 dB, 47k Ω load	Hz	20 ~ 22 k	
CD	fs = 44.1 kHz ± 0.5 dB, 47k Ω load	Hz	20 ~ 20 k	
3-4. THD+N				
DVD	1 kHz, 0 dB, 47k Ω load	%	0.01	
CD	1 kHz, 0 dB, 47k Ω load	%	0.01	

Notes:

1. All Items are measured without pre-emphasis unless otherwise specified.
2. Power supply: AC 120 V, 60 Hz
3. Ambient Temperature: +25 °C

LASER BEAM SAFETY PRECAUTIONS

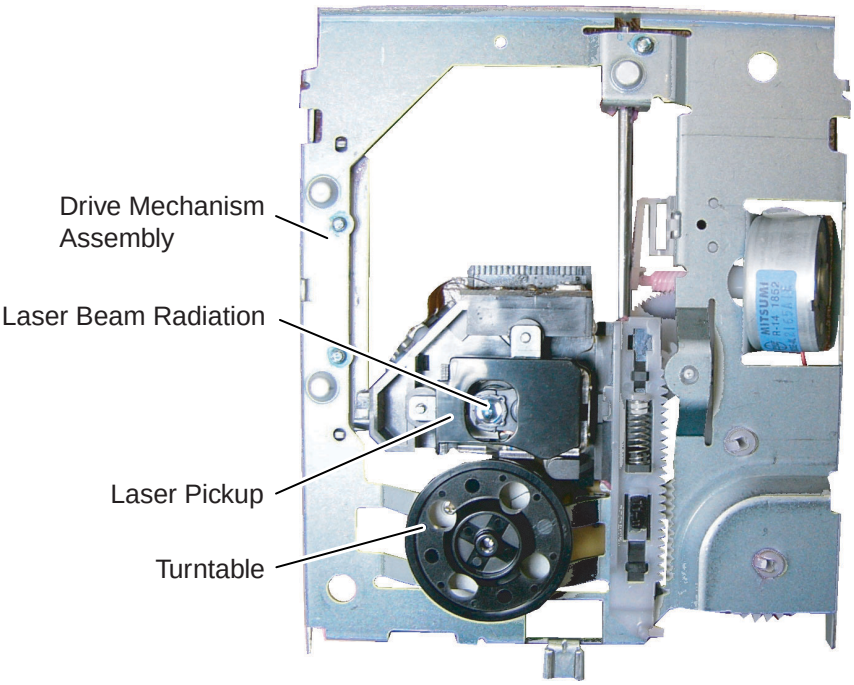
This DVD player uses a pickup that emits a laser beam.



Do not look directly at the laser beam coming from the pickup or allow it to strike against your skin.

The laser beam is emitted from the location shown in the figure. When checking the laser diode, be sure to keep your eyes at least 30 cm away from the pickup lens when the diode is turned on. Do not look directly at the laser beam.

CAUTION: Use of controls and adjustments, or doing procedures other than those specified herein, may result in hazardous radiation exposure.



CAUTION
LASER RADIATION
WHEN OPEN. DO NOT
STARE INTO BEAM.

Location: Top of DVD mechanism.

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety. Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements. Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:
1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:
1) Insulation tape
2) PVC tubing
3) Spacers
4) Insulators for transistors

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).

G. Check that replaced wires do not contact sharp edges or pointed parts.

H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Be careful that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector
The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.
Replacement procedure
1) Remove the old connector by cutting the wires at a point close to the connector.
Important: Do not re-use a connector. (Discard it.)
2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
4) Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1: Ratings for selected area

AC Line Voltage	Clearance Distance (d), (d')
120 V	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

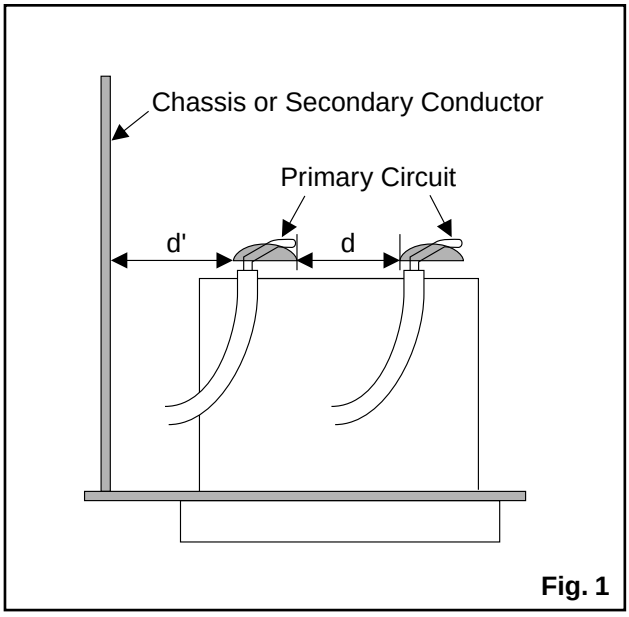


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method (Power ON):

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

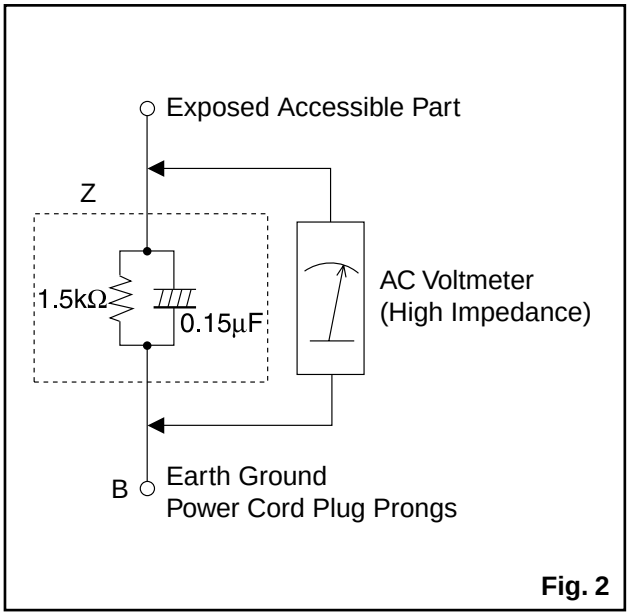


Fig. 2

Table 2: Leakage current ratings for selected areas

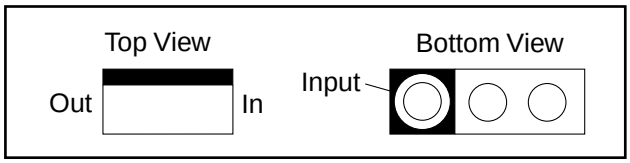
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
120 V	0.15 μF CAP. & 1.5 kΩ RES. Connected in parallel	i ≤ 0.5 mA Peak	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

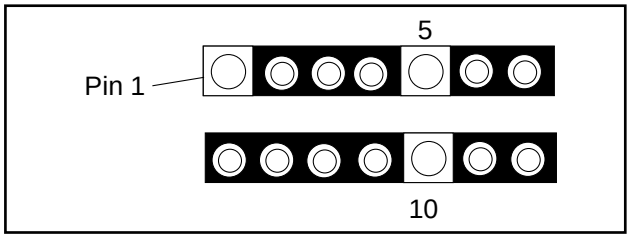
STANDARD NOTES FOR SERVICING

Circuit Board Indications

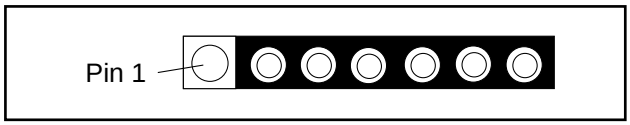
1. The output pin of the 3 pin Regulator ICs is indicated as shown.



2. For other ICs, pin 1 and every fifth pin are indicated as shown.

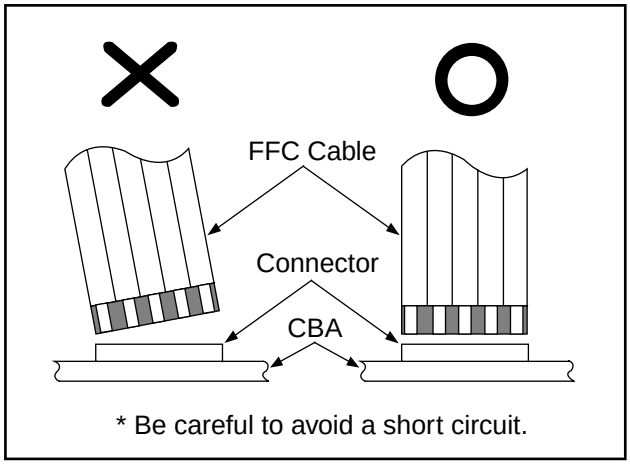


3. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



Pb (Lead) Free Solder

When soldering, be sure to use the Pb free solder.

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

1. Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

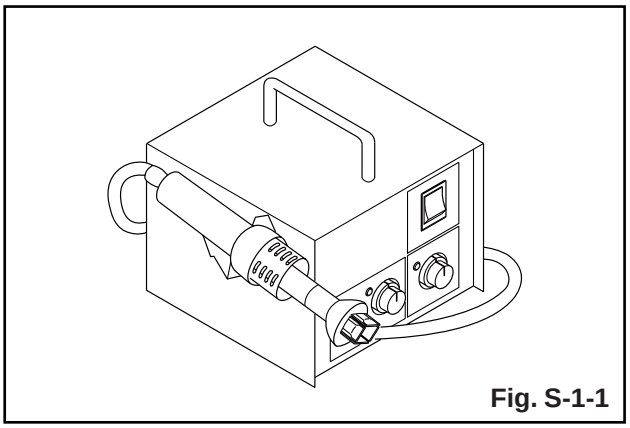


Fig. S-1-1

2. Remove the flat pack-IC with tweezers while applying the hot air.
3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

CAUTION:

1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

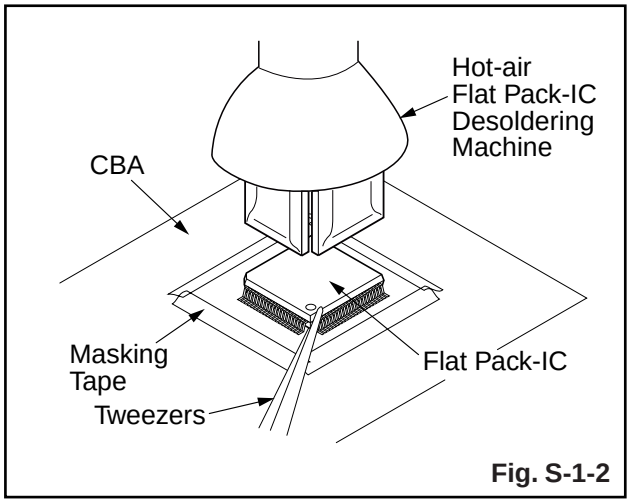


Fig. S-1-2

With Soldering Iron:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

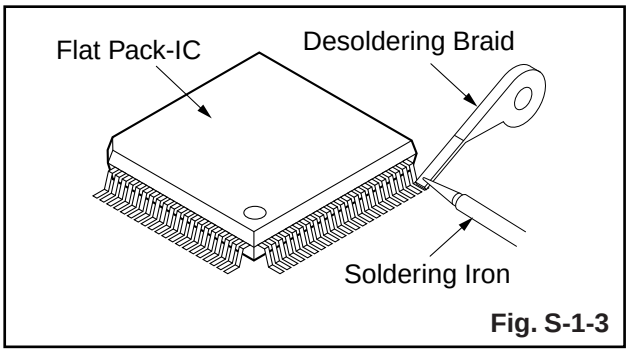


Fig. S-1-3

2. Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

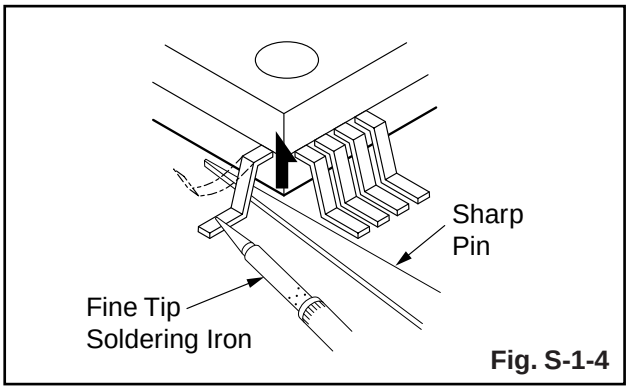


Fig. S-1-4

3. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
4. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

1. Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)
2. Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.
3. While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.
4. Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)
5. Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note: When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

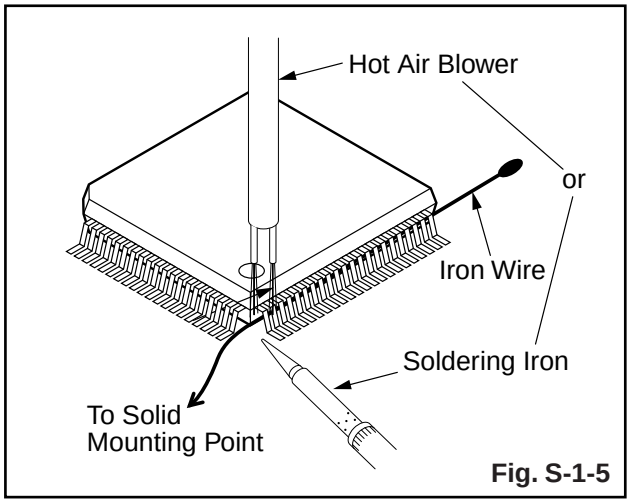


Fig. S-1-5

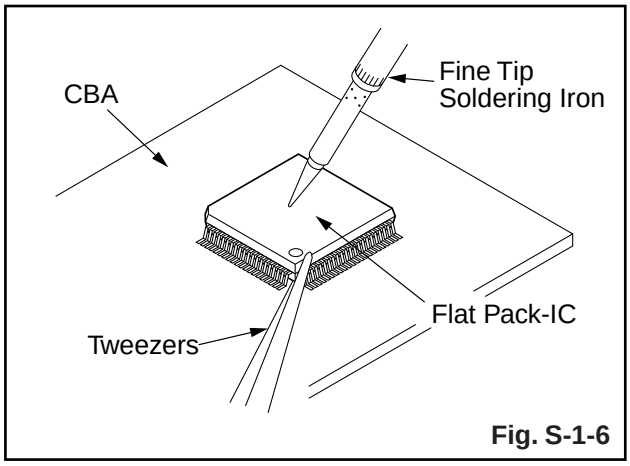


Fig. S-1-6

2. Installation

1. Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.
2. The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)
3. Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

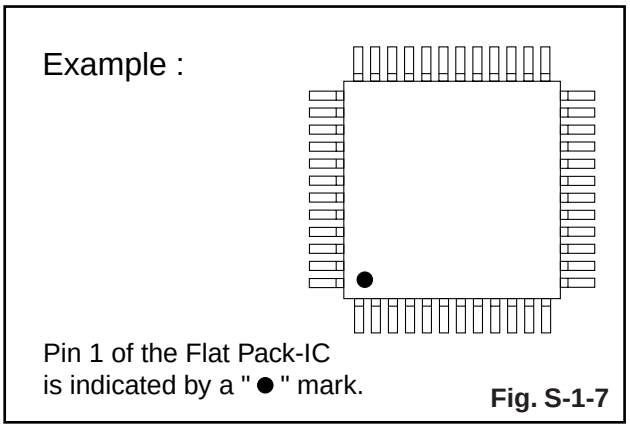


Fig. S-1-7

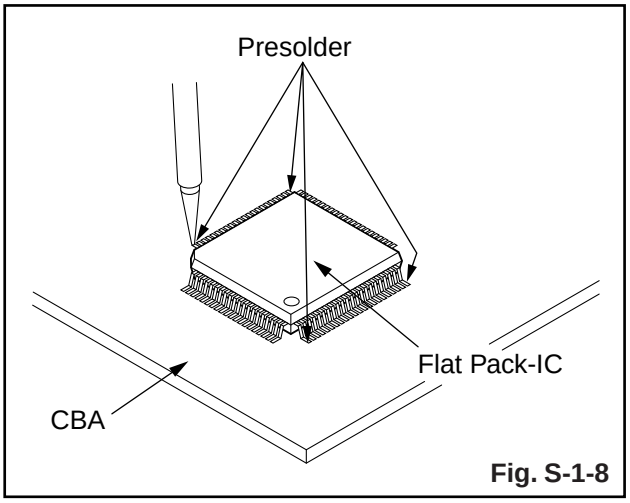


Fig. S-1-8

Instructions for Handling Semi-conductors

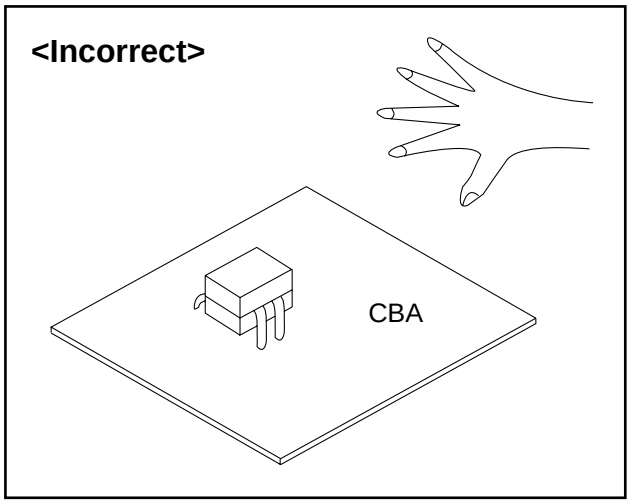
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

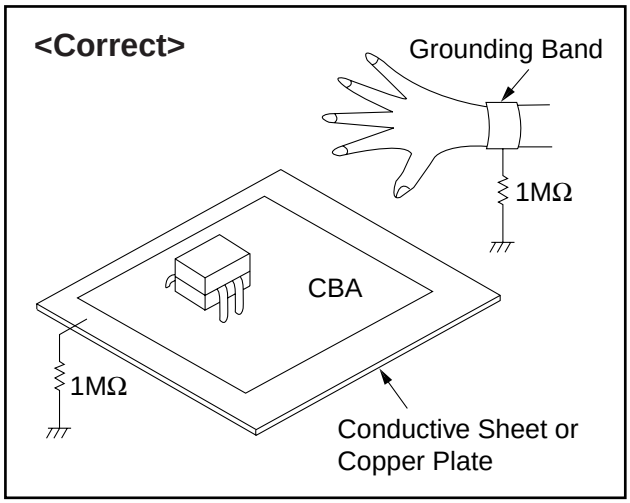
1. Ground for Human Body

Be sure to wear a grounding band (1 MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1 MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.





PREPARATION FOR SERVICING

How to Enter the Service Mode

About Optical Sensors

Caution:

An optical sensor system is used for the Tape Start and End Sensors on this equipment. Carefully read and follow the instructions below. Otherwise the unit may operate erratically.

What to do for preparation

Insert a tape into the Deck Mechanism Assembly and press the [PLAY] button. The tape will be loaded into the Deck Mechanism Assembly. Make sure the power is on, connect S-INH (hollow) to GND. This will stop the function of Tape Start Sensor, Tape End Sensor and Reel Sensors. (If these TPs are connected before plugging in the unit, the function of the sensors will stay valid.) See Fig. 1.

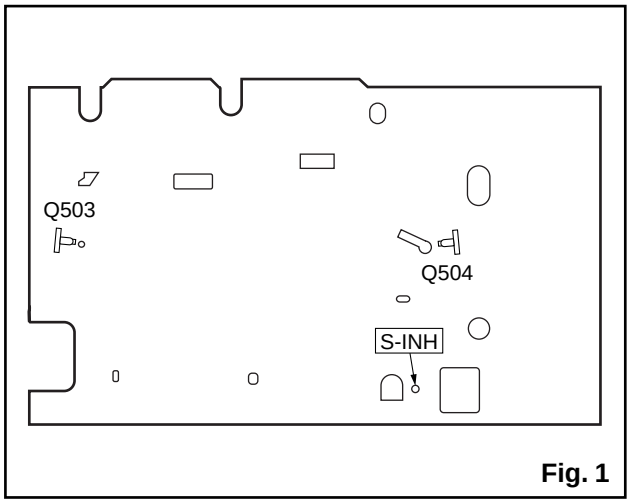


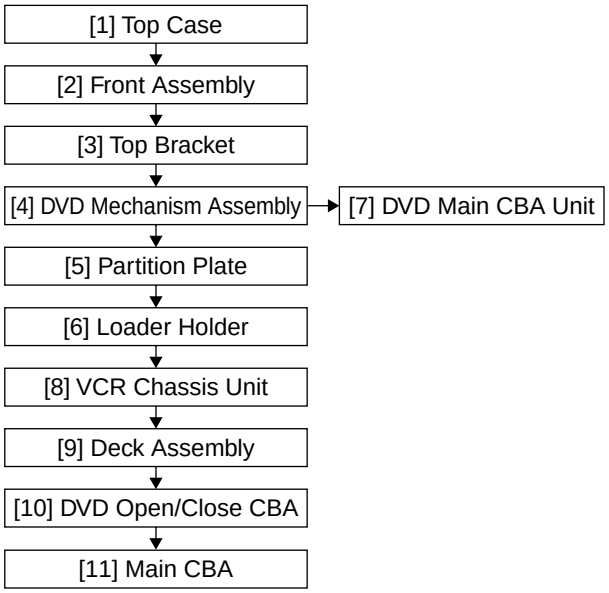
Fig. 1

Note: Because the Tape End Sensors are inactive, do not run a tape all the way to the start or the end of the tape to avoid tape damage.

CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.



2. Disassembly Method

ID/ Loc. No.	Part	Removal		
		Fig. No.	Remove/*Unhook/ Unlock/Release/ Unplug/Desolder	Note
[1]	Top Case	D1	4(S-1)	---
[2]	Front Assembly	D2	*3(L-1), *3(L-2)	1
[3]	Top Bracket	D2	3(S-2)	---
[4]	DVD Mechanism Assembly	D3	4(S-3), *CN401, *CN601	---
[5]	Partition Plate	D3	2(S-4)	---
[6]	Loader Holder	D3	2(S-5)	---
[7]	DVD Main CBA Unit	D4	2(S-6), *CN201, *CN301,PCB Holder	2, 3
[8]	VCR Chassis Unit	D5	5(S-7), (S-8)	---
[9]	Deck Assembly	D6	*Desolder, (S-9), (S-10), (S-11)	4, 5
[10]	DVD Open/ Close CBA	D6	*Desolder	---
[11]	Main CBA	D6	----------	---
		↓ (3)	↓ (4)	↓ (5)
		↓ (1)	↓ (2)	

Note:

(1) Identification (location) No. of parts in the figures

(2) Name of the part

(3) Figure Number for reference

(4) Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P = Spring, L = Locking Tab, S = Screw,
CN = Connector
* = Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

(5) Refer to “Reference Notes.”

Reference Notes

1. **CAUTION 1:** Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.
   1) Release three Locking Tabs (L-1).
   2) Release three Locking Tabs (L-2), then remove the Front Assembly.
2. **CAUTION 2:** Electrostatic breakdown of the laser diode in the optical system block may occur as a potential difference caused by electrostatic charge accumulated on cloth, human body etc, during unpacking or repair work.
   To avoid damage of pickup follow next procedures.
   1) Disconnect Connector (CN301). Remove two Screws (S-6) and lift the DVD Main CBA Unit. (Fig. D4)
   2) Short the three short lands of FPC cable with solder before removing the FFC cable (CN201) from it. If you disconnect the FFC cable (CN201), the laser diode of pickup will be destroyed. (Fig. D4)
3. **CAUTION 3:** When reassembling, confirm the FFC cable (CN201) is connected completely. Then remove the solder from the three short lands of FPC cable. (Fig. D4)
4. When reassembling, solder wire jumpers as shown in Fig. D6.

5. Before installing the Deck Assembly, be sure to place the pin of LD-SW on Main CBA as shown in Fig. D6. Then, install the Deck Assembly while aligning the hole of Cam Gear with the pin of LD-SW, the shaft of Cam Gear with the hole of LD-SW as shown in Fig. D6.

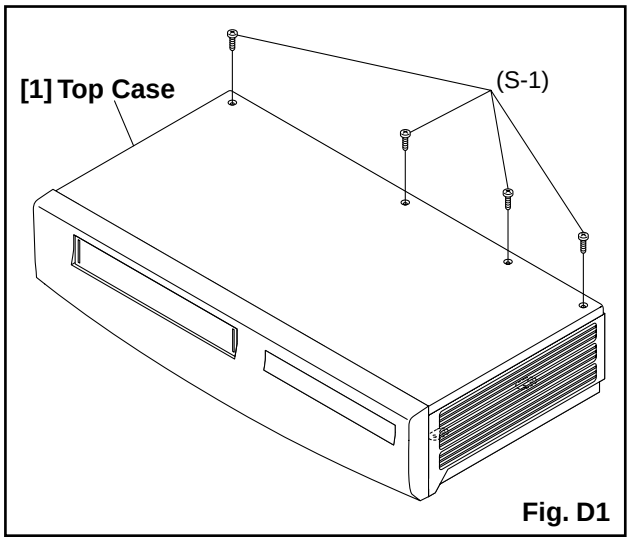


Fig. D1

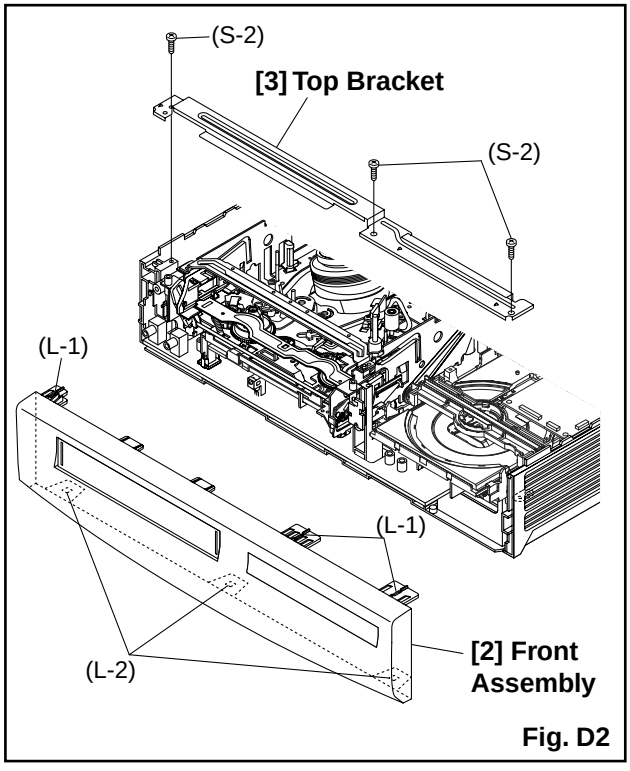


Fig. D2

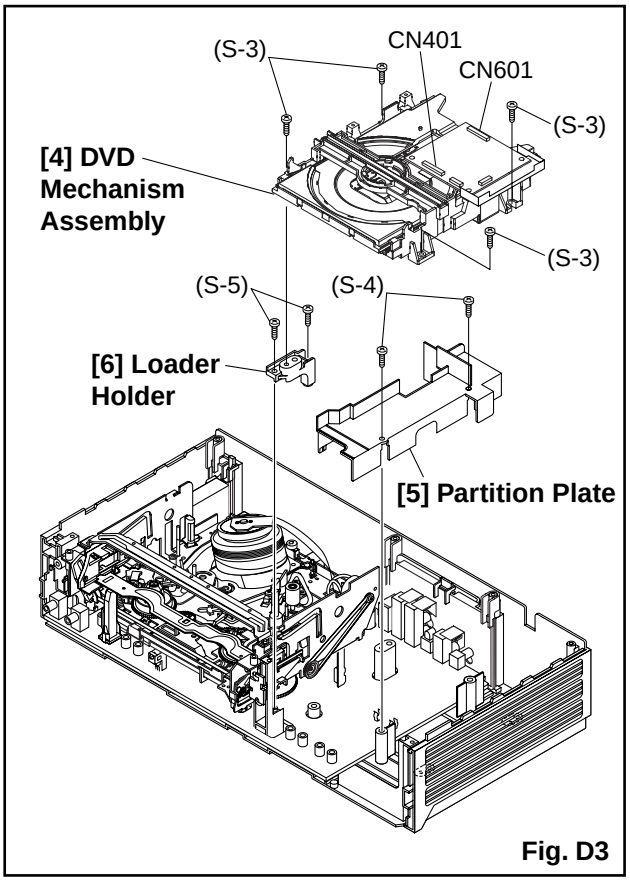


Fig. D3

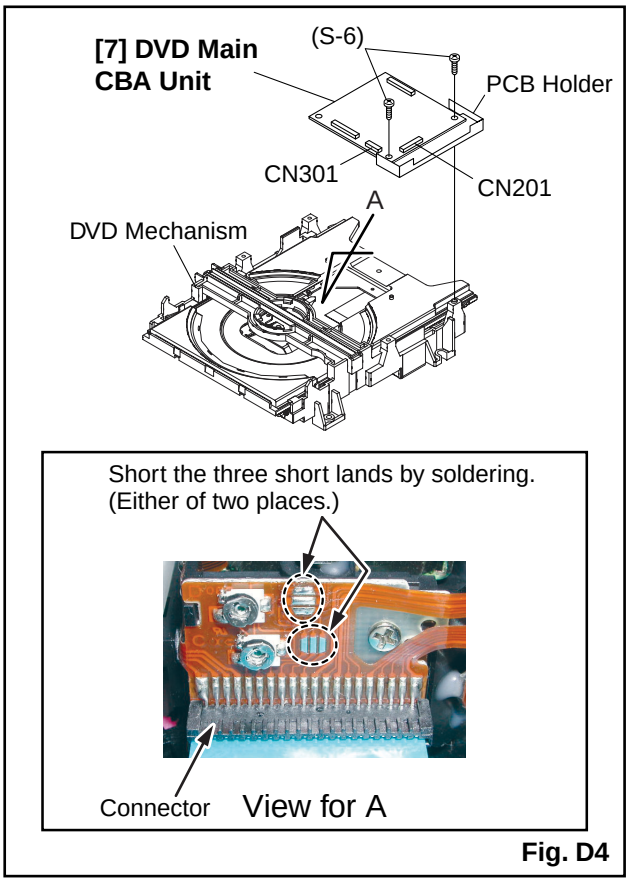


Fig. D4

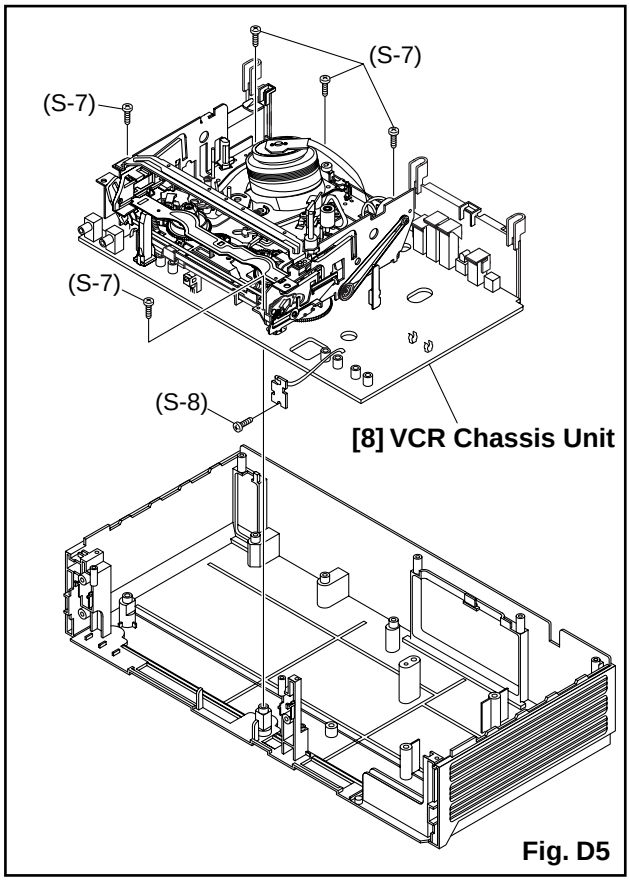
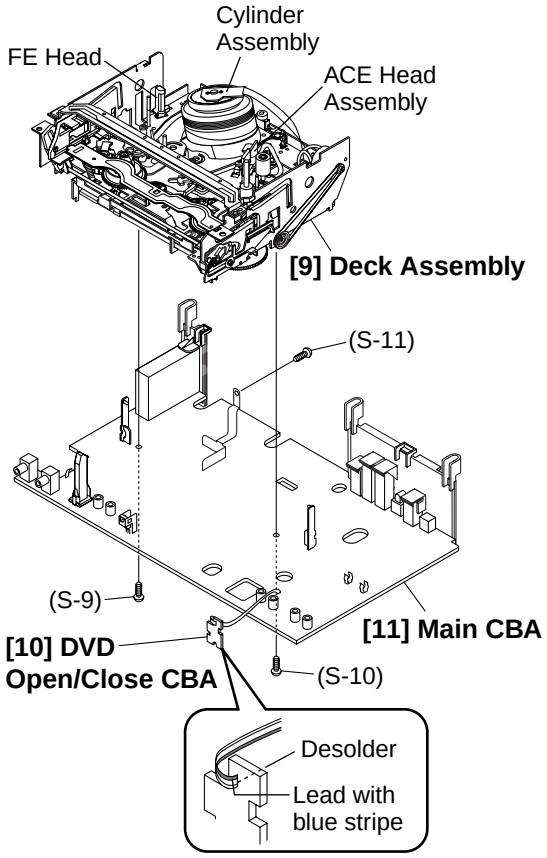
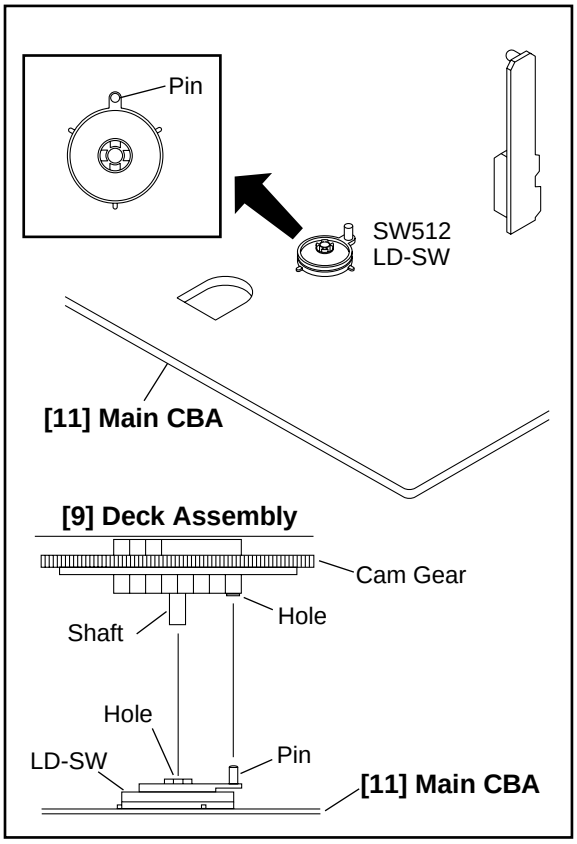
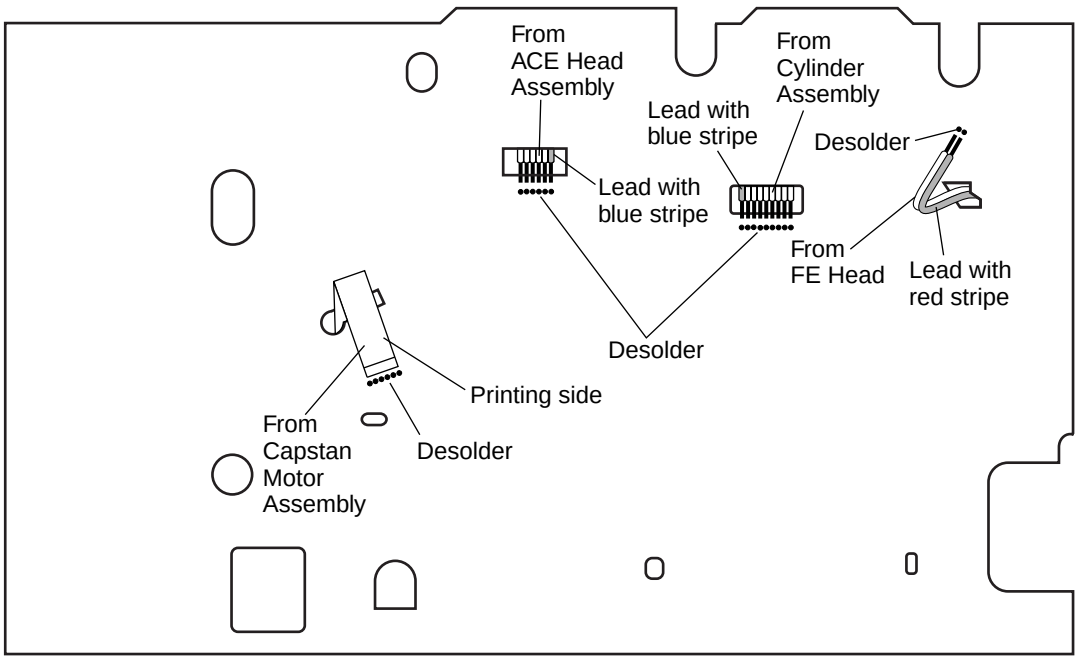


Fig. D5







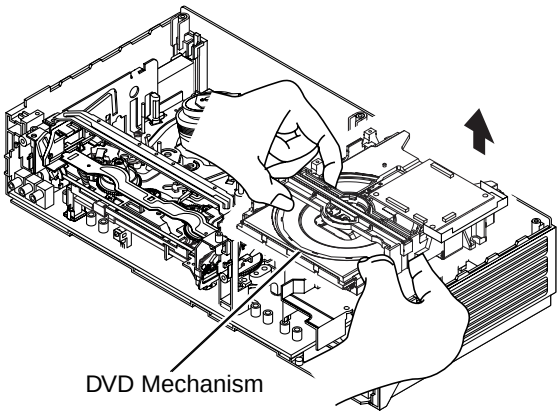
BOTTOM VIEW

Lead connections of Deck Assembly and Main CBA

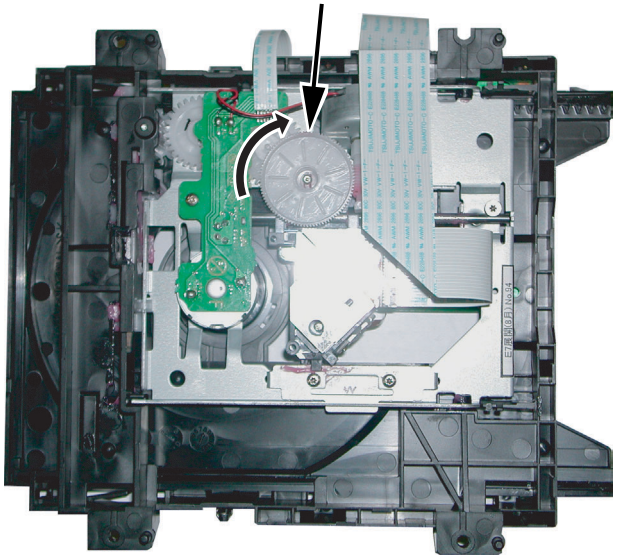
Fig. D6

3. HOW TO EJECT MANUALLY

1. Remove the Top Case, Front Assembly and Top Bracket.
2. Remove four Screws (S-3) in Fig. D3. Do not disconnect connectors.
3. While lifting up the DVD Mechanism, rotate the roulette in the direction of the arrow as shown below.
4. Pull the tray slowly manually.



The gear is turned to the direction of the arrow.



The Back of DVD Mechanism Assembly

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note: "CBA" is abbreviation for "Circuit Board Assembly."

NOTE:

1. Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to do these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.
2. To perform these alignment / confirmation procedures, make sure that the tracking control is set in the center position: Press either [CHANNEL ▼] or [CHANNEL ▲] button on the front panel first, then the [PLAY] button on the front panel.

Test Equipment Required

1. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range: 0.001~50 V/Div.,
   F-Range: DC~AC-20 MHz
2. Alignment Tape (FL8A)

Head Switching Position Adjustment

Purpose: To determine the Head Switching position during playback.

Symptom of Misadjustment: May cause Head Switching noise or vertical jitter in the picture.

Test point	Adj. Point	Mode	Input
TP751(V-OUT) TP302(RF-SW) GND	VR501 (Switching Point)	PLAY (SP)	-----
Tape	**Measurement Equipment**	**Spec.**	
FL8A	Oscilloscope	6.5H ± 1H (412.7µs±63.5µs)	

Connections of Measurement Equipment

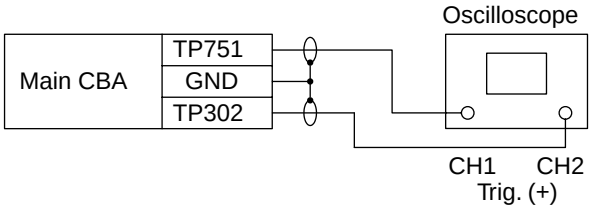
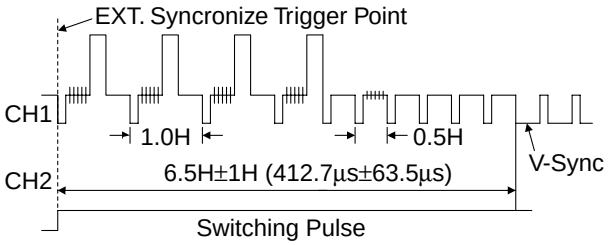


Figure 1



Note: TP751(V-OUT), TP302(RF-SW), VR501(Switching Point) --- Main CBA

Reference Notes:

Playback the Alignment tape and adjust VR501 so that the V-sync front edge of the CH1 video output waveform is at the 6.5H ± 1H (412.7 µs ± 63.5 µs) delayed position from the rising edge of the CH2 head switching pulse waveform.

HOW TO INITIALIZE THE DVD PLAYER & VCR

To put the program back at the factory-default, initialize the DVD player & VCR as the following procedure.

< DVD Section >

1. Press [DVD], [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order.
   Fig. a appears on the screen.

"*******" differs depending on the models.

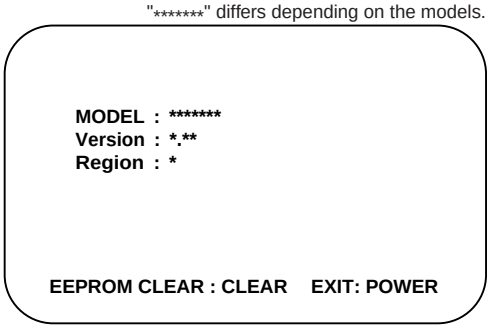


Fig. a

2. Press [CLEAR/C.RESET] button on the remote control unit.
   Fig. b appears on the screen.

"*******" differs depending on the models.

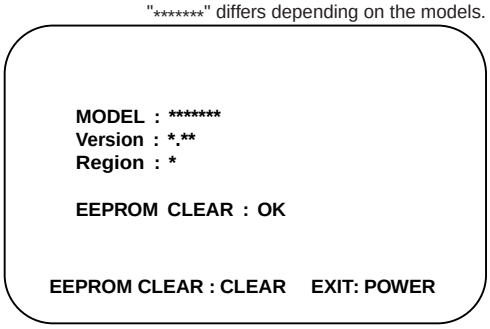


Fig. b

   When “OK” appears on the screen, the factory default will be set.
3. To exit this mode, press [STANDBY-ON] button.

FIRMWARE RENEWAL MODE

1. Turn the power on and remove the disc on the tray.
2. To put the DVD player into version up mode, press [DVD], [9], [8], [7], [6], and [SEARCH MODE] buttons on the remote control unit in that order.
   The tray will open automatically.
   Fig. a appears on the screen.

"*******" differs depending on the models.

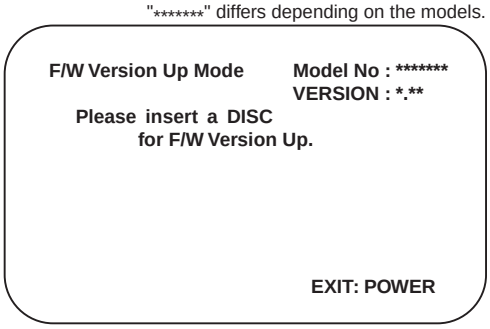


Fig. a Version Up Mode Screen

   The DVD player can also enter the version up mode with the tray open. In this case, Fig. a will be shown on the screen while the tray is open.
3. Load the disc for version up.
4. The DVD player enters the F/W version up mode automatically. Fig. c appears on the screen. If you enter the F/W for different models, “Disc Error” will appear on the screen, then the tray will open automatically.

"*******" differs depending on the models.

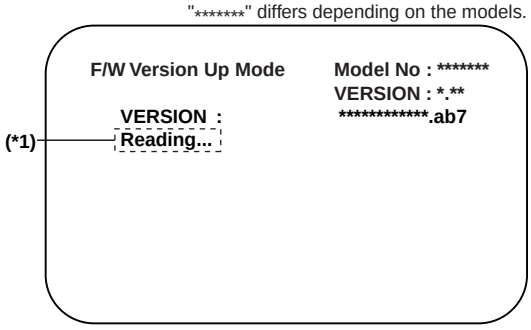


Fig. c Programming Mode Screen

   The appearance shown in (*1) of Fig. c is described as follows:

No.	Appearance	State
1	Reading...	Sending files into the memory
2	Erasing...	Erasing previous version data
3	Programming...	Writing new version data

5. After programming is finished, the tray opens automatically. Fig. e appears on the screen.

"*******" differs depending on the models.

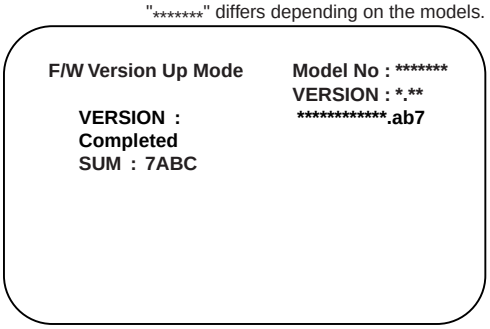


Fig. e Completed Program Mode Screen

   At this time, no button is available.
6. Remove the disc on the tray.
7. Unplug the AC cord from the AC outlet. Then plug it again.
8. Turn the power on by pressing the [STANDBY-ON] button and the tray will close.
9. Press [1], [2], [3], [4], and [DISPLAY] buttons on the remote control unit in that order.
   Fig. g appears on the screen.

"*******" differs depending on the models.

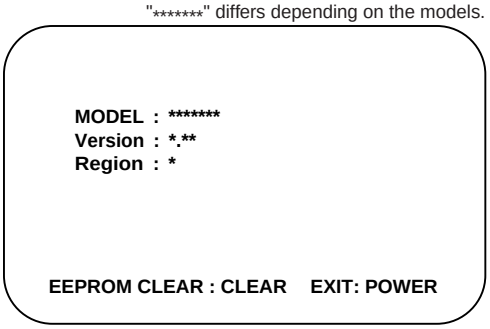


Fig. g

10. Press [CLEAR/C.RESET] button on the remote control unit.
    Fig. h appears on the screen.

"*******" differs depending on the models.

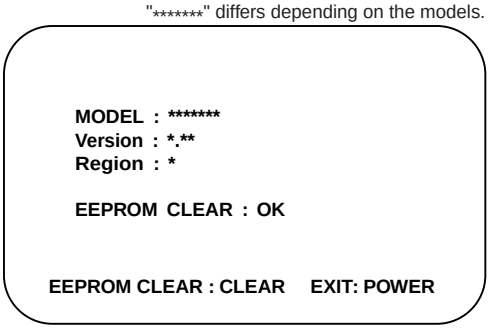


Fig. h

    When “OK” appears on the screen, the factory default will be set. Then the firmware renewal mode is complete.
11. To exit this mode, press [STANDBY-ON] button.

FUNCTION INDICATOR SYMBOLS

Note: If a mechanical malfunction occurs, the power is turned off. When the power comes on again after that by pressing [STANDBY-ON] button, an error message is displayed on the TV screen for 5 seconds.

Cause	Indicator Active
When reel or capstan mechanism is not functioning correctly	"EJECT ⏏ R" is displayed on a TV screen. (Refer to Fig. 1.)
When tape loading mechanism is not functioning correctly	"EJECT ⏏ T" is displayed on a TV screen. (Refer to Fig. 2.)
When cassette loading mechanism is not functioning correctly	"EJECT ⏏ C" is displayed on a TV screen. (Refer to Fig. 3.)
When the drum is not working properly	"EJECT ⏏ D" is displayed on a TV screen. (Refer to Fig. 4.)
P-ON+5V Power safety detection	"EJECT ⏏ P" is displayed on a TV screen. (Refer to Fig. 5.)

TV screen

When reel or capstan mechanism is not functioning correctly

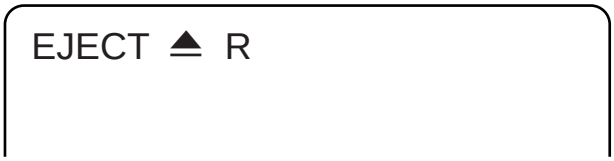


Fig. 1

When tape loading mechanism is not functioning correctly

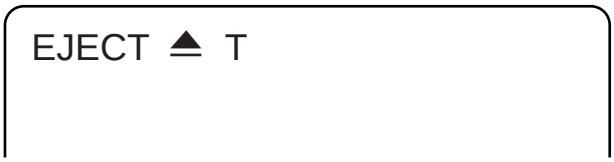


Fig. 2

When tape loading mechanism is not functioning correctly

Fig. 3

When the drum is not working properly

Fig. 4

P-ON+5V Power safety detection

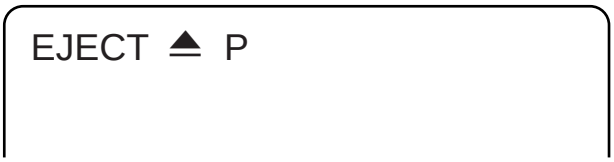
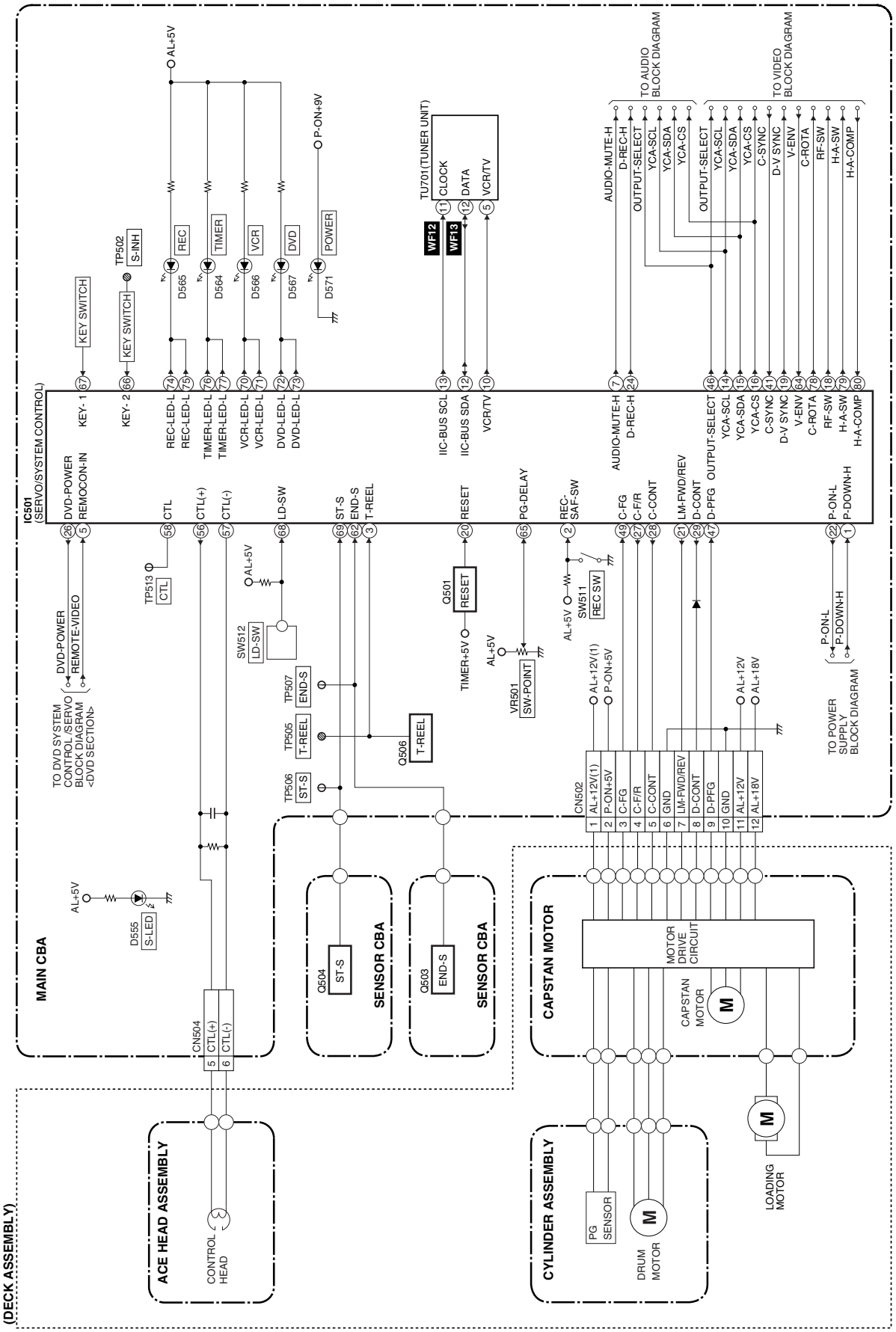


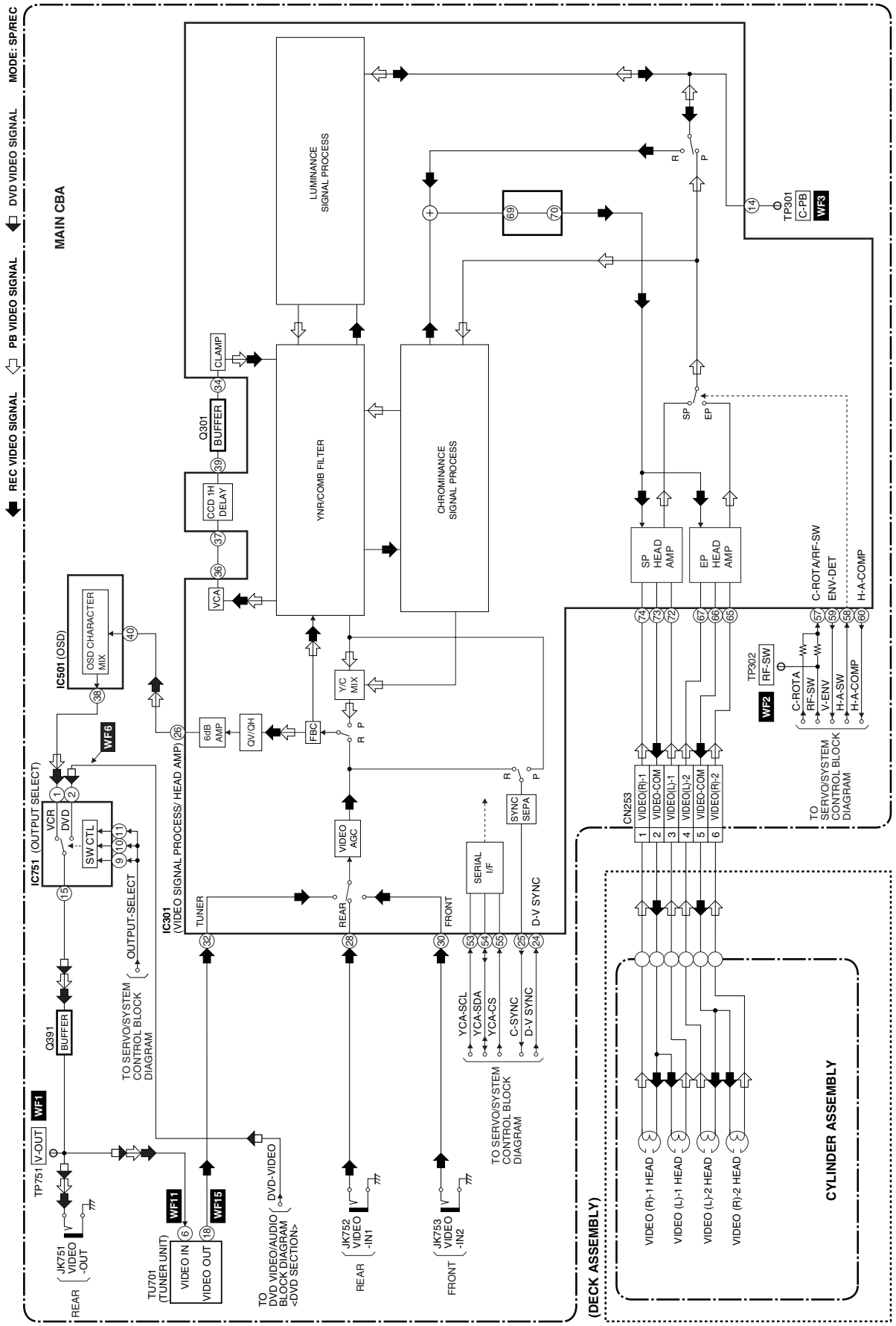
Fig. 5

BLOCK DIAGRAMS <VCR SECTION>

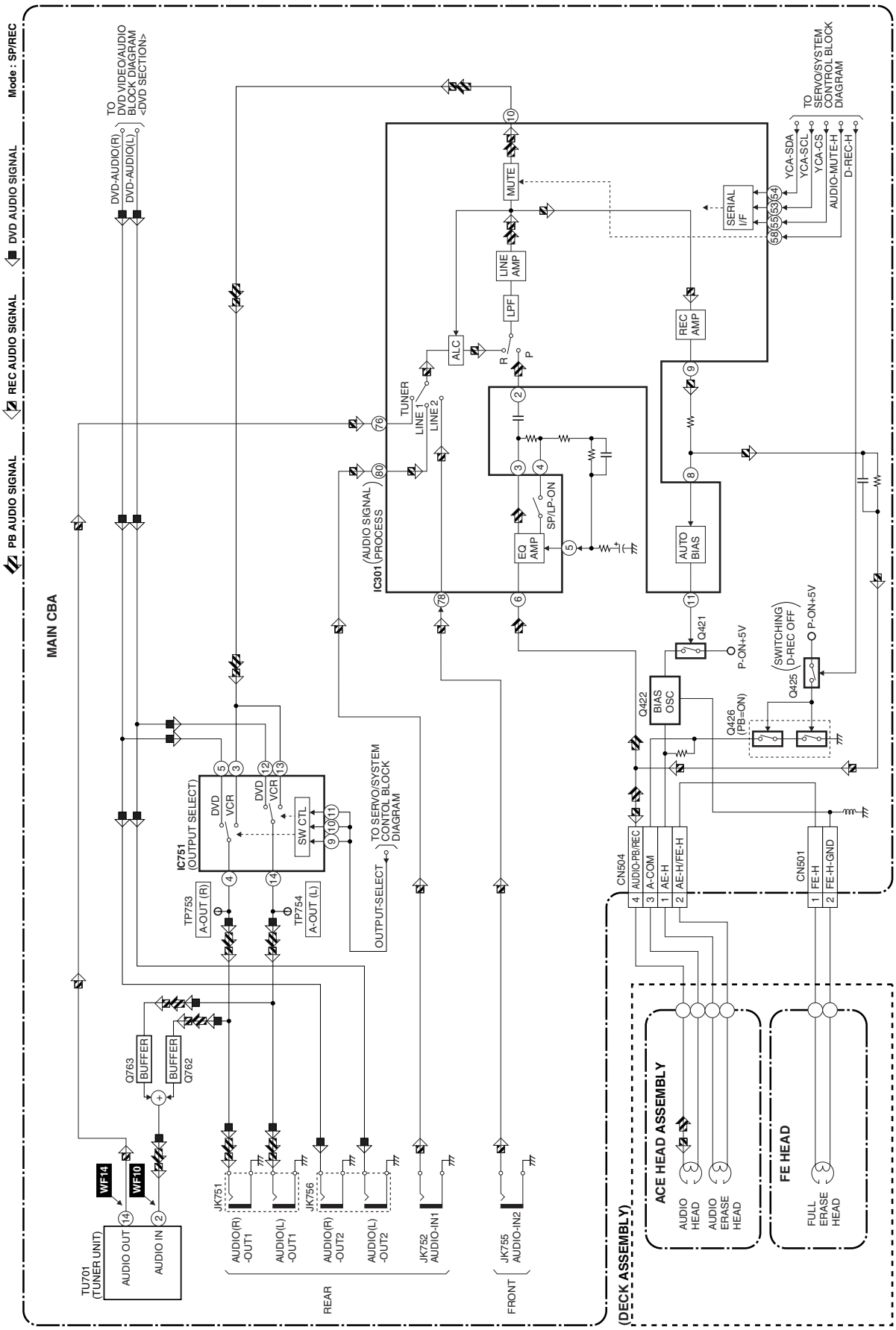
Servo / System Control Block Diagram



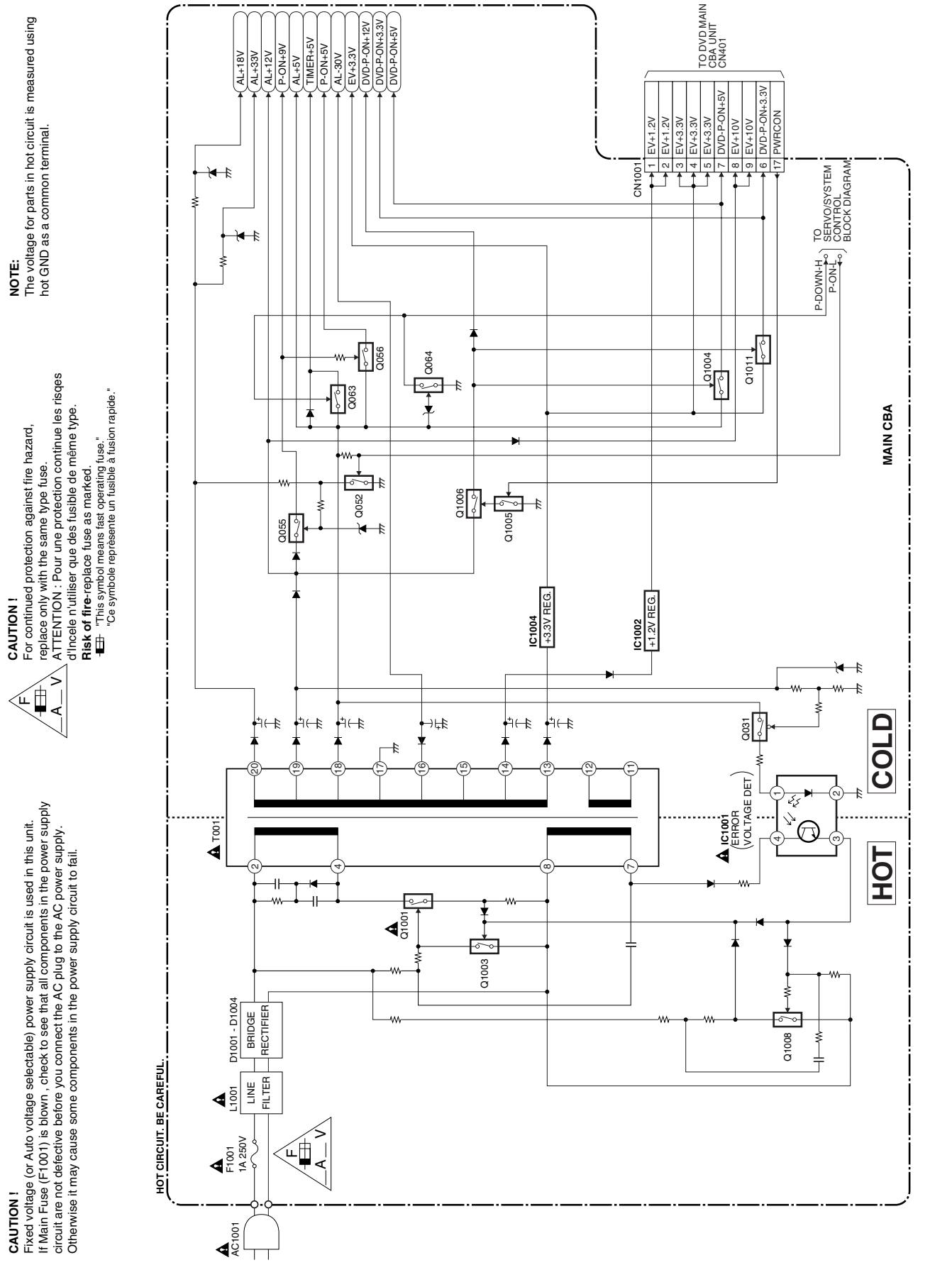
Video Block Diagram



Audio Block Diagram



Power Supply Block Diagram



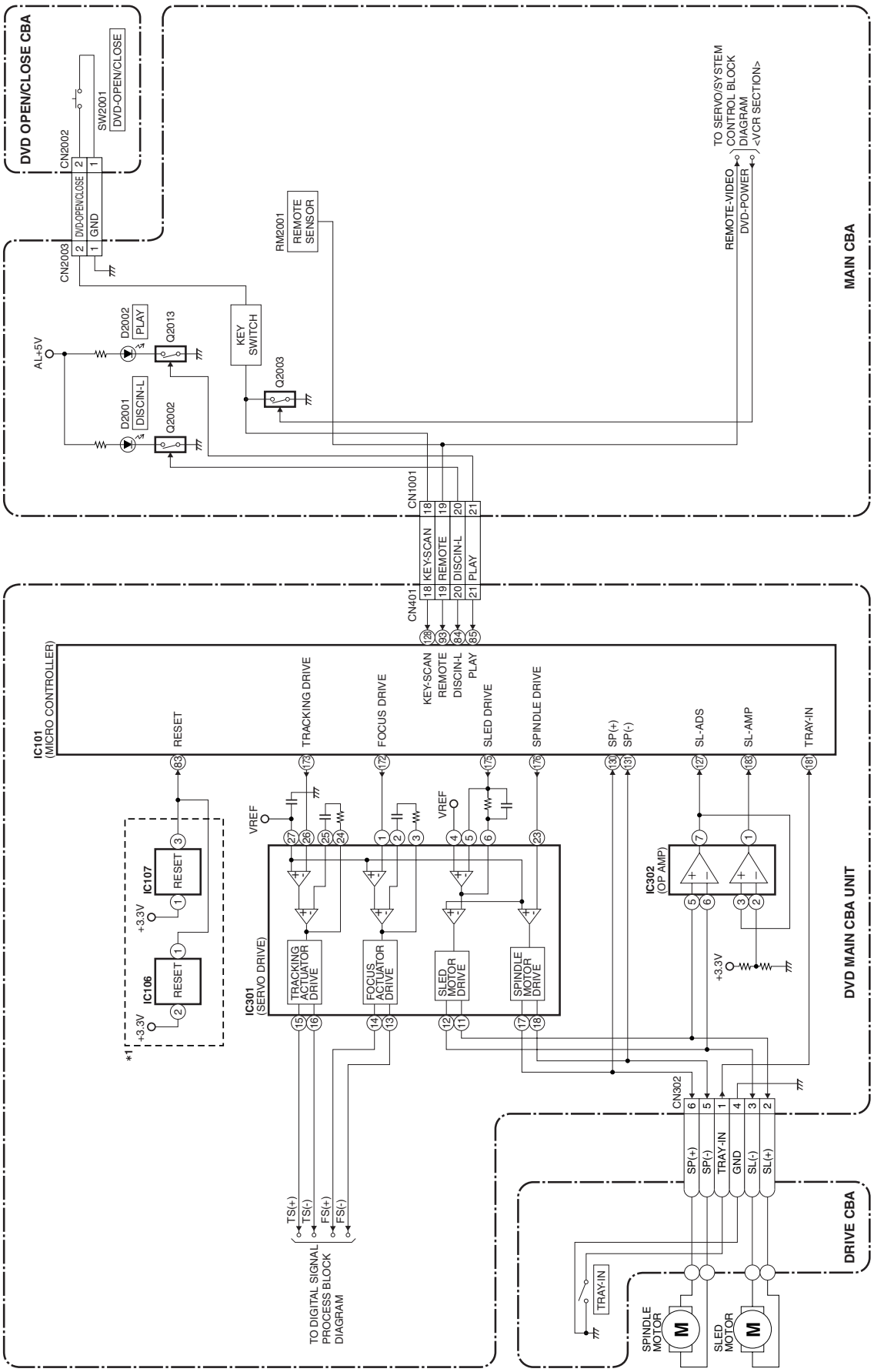
CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.
ATTENTION : Pour une protection continue les risques d'Incele n'utiliser que des fusible de même type.
Risk of fire-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

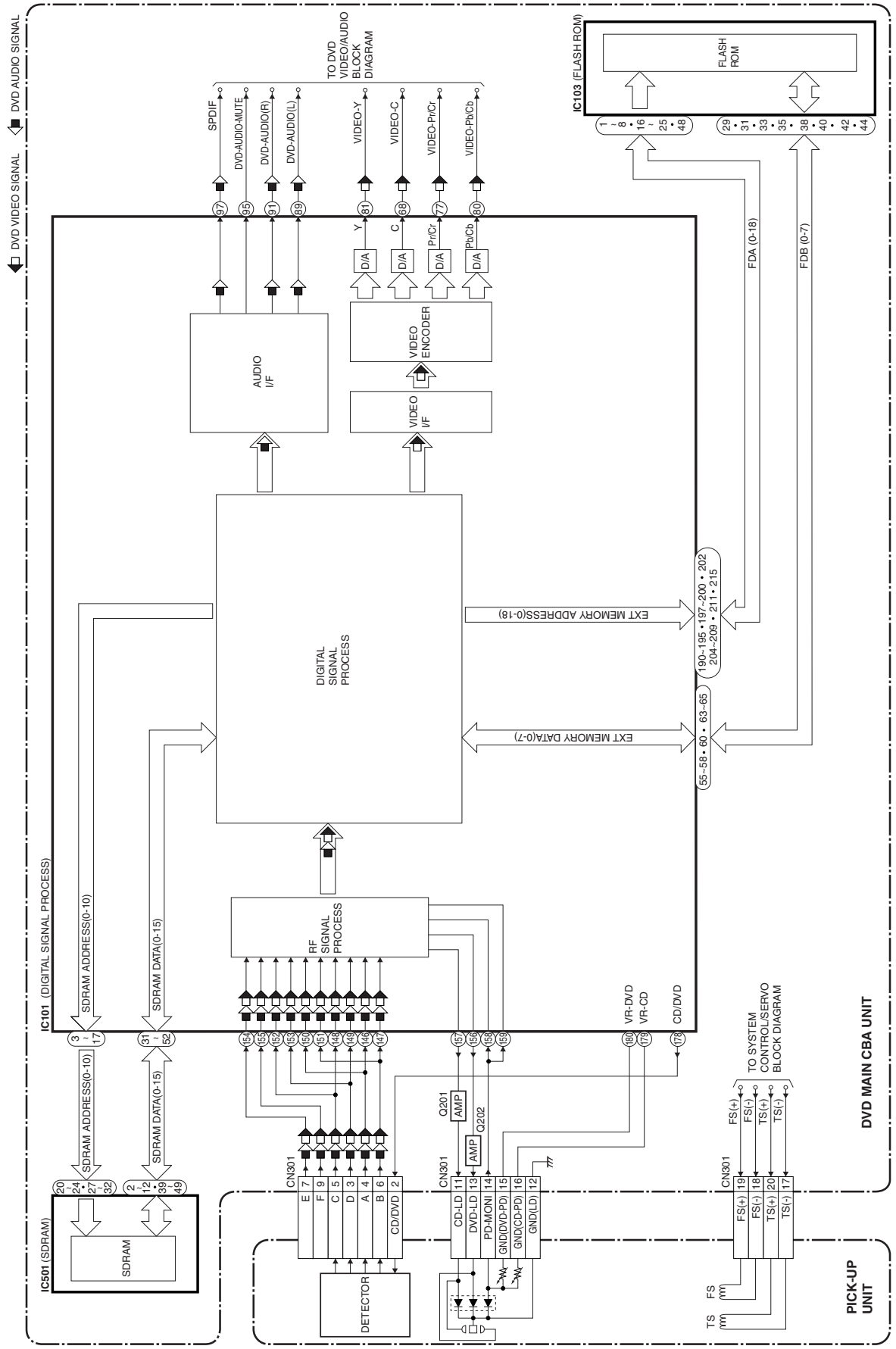
BLOCK DIAGRAMS <DVD SECTION>

DVD System Control / Servo Block Diagram

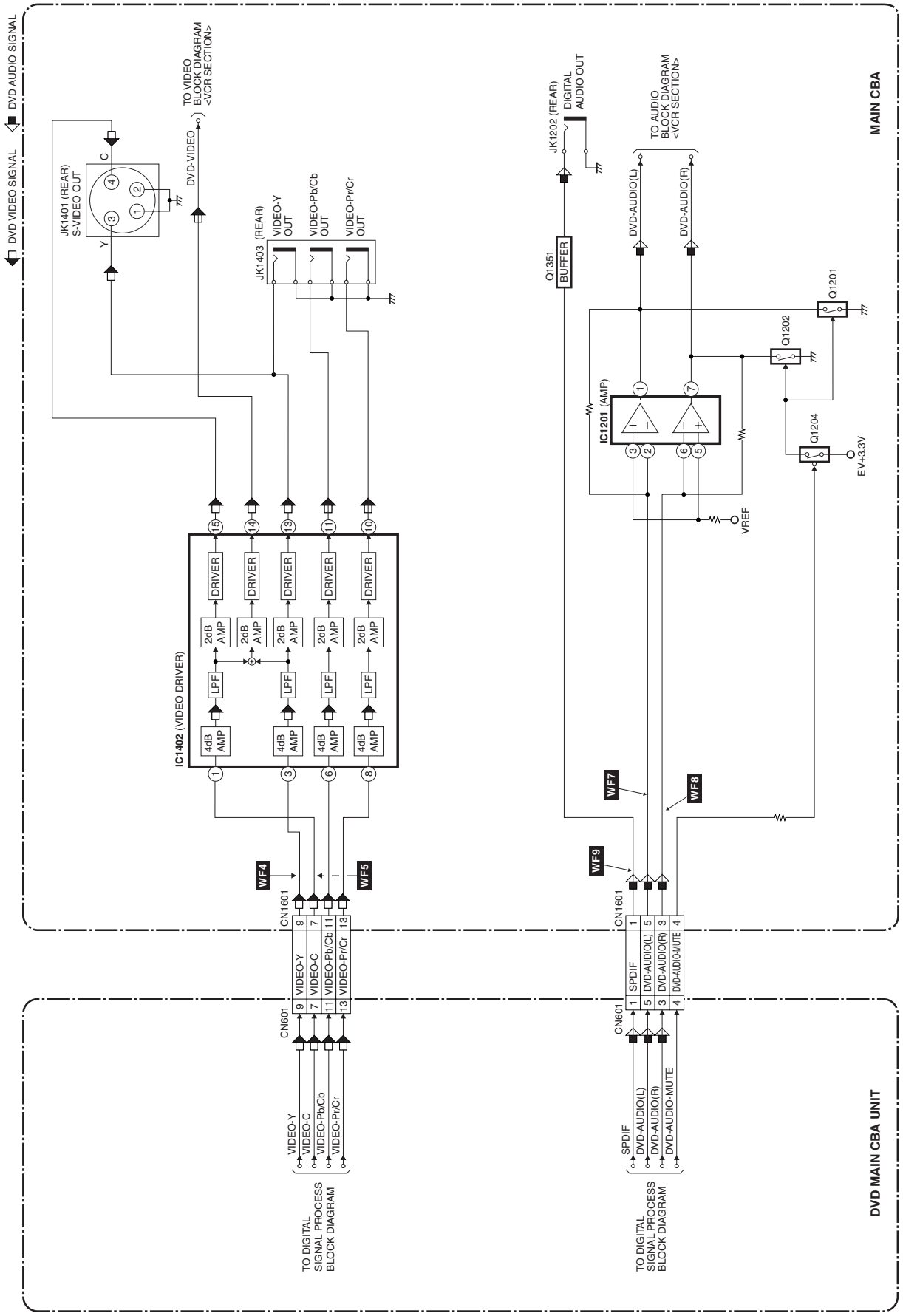


***1 NOTE:**
Either IC106 or IC107 is used for DVD MAIN CBA UNIT.

Digital Signal Process Block Diagram



DVD Video / Audio Block Diagram



SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

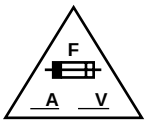
Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark "⚠" in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K = 10^3$, $M = 10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P = 10^{-6}$ μF).
5. All voltages are DC voltages unless otherwise specified.

LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. CAUTION:



FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MÊME TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

This symbol means fast operating fuse.
Ce symbole reprèsente un fusible à fusion rapide.

2. CAUTION:

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

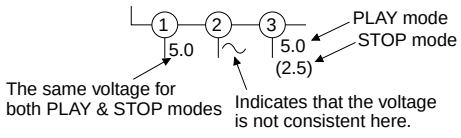
3. Note:

1. Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.
2. To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

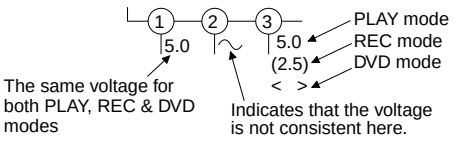
4. Mode: SP/REC

5. Voltage indications for PLAY and REC modes on the schematics are as shown below:

< DVD Section >



< VCR Section >

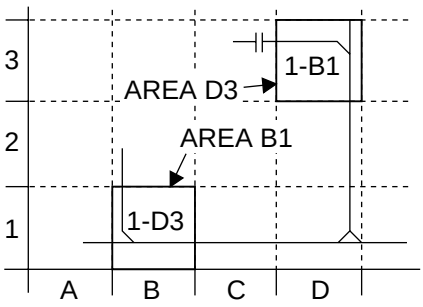


Unit: Volts

6. How to read converged lines

1-D3
- Distinction Area
- Line Number (1 to 3 digits)

Examples:
1. "1-D3" means that line number "1" goes to the line number "1" of the area "D3".
2. "1-B1" means that line number "1" goes to the line number "1" of the area "B1".



7. Test Point Information

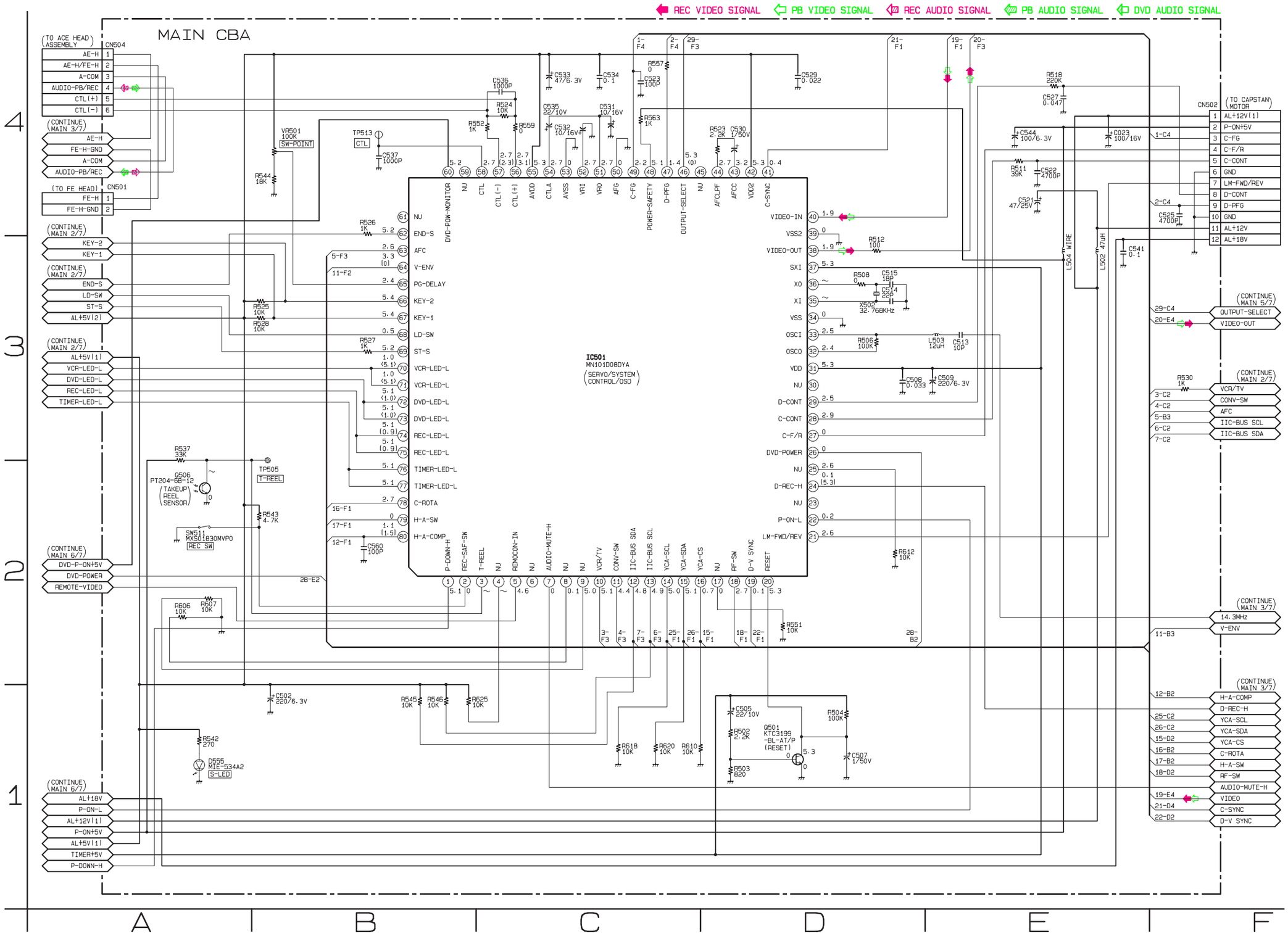
: Indicates a test point with a jumper wire across a hole in the PCB.

: Used to indicate a test point with a component lead on foil side.

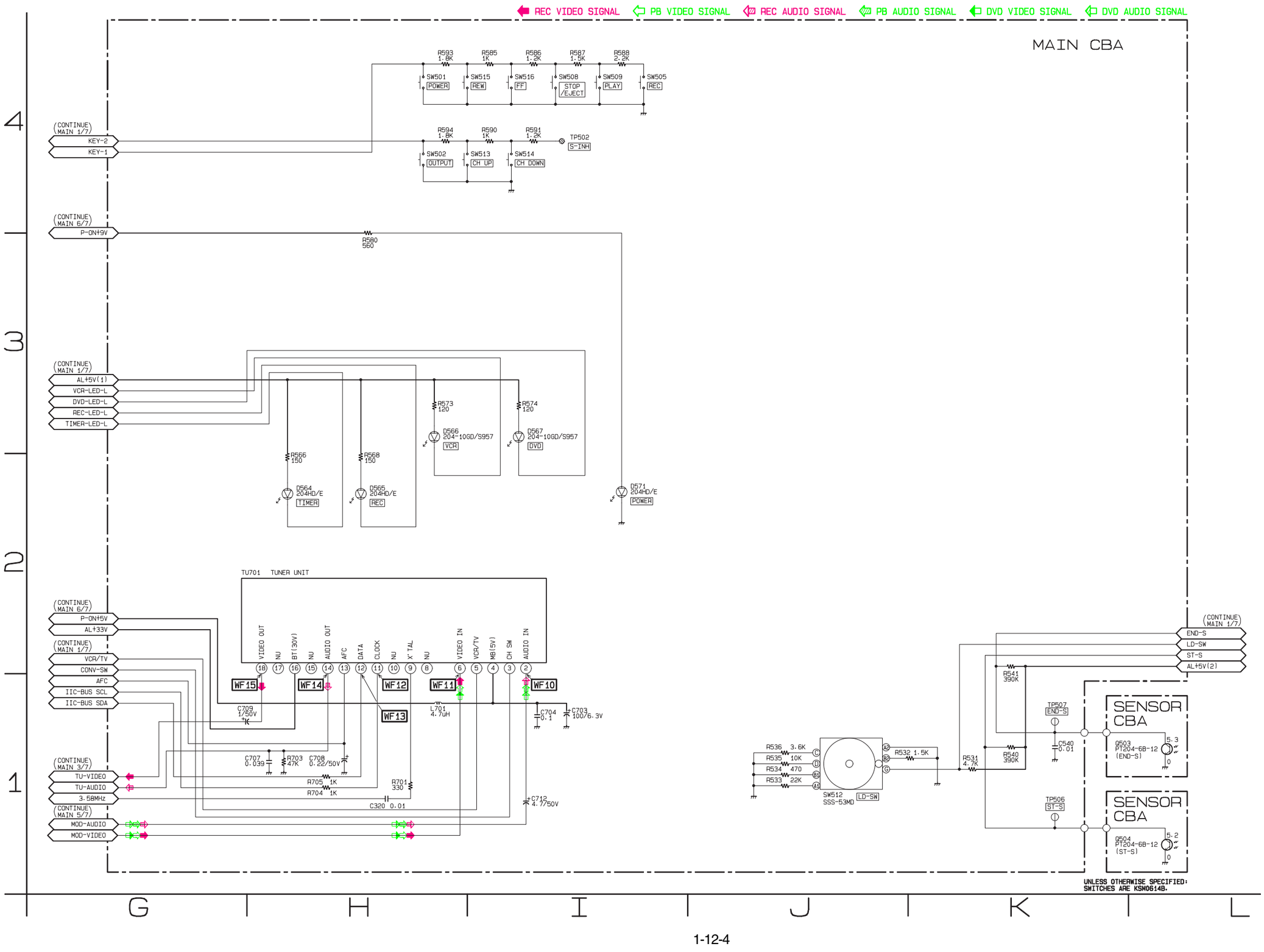
: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

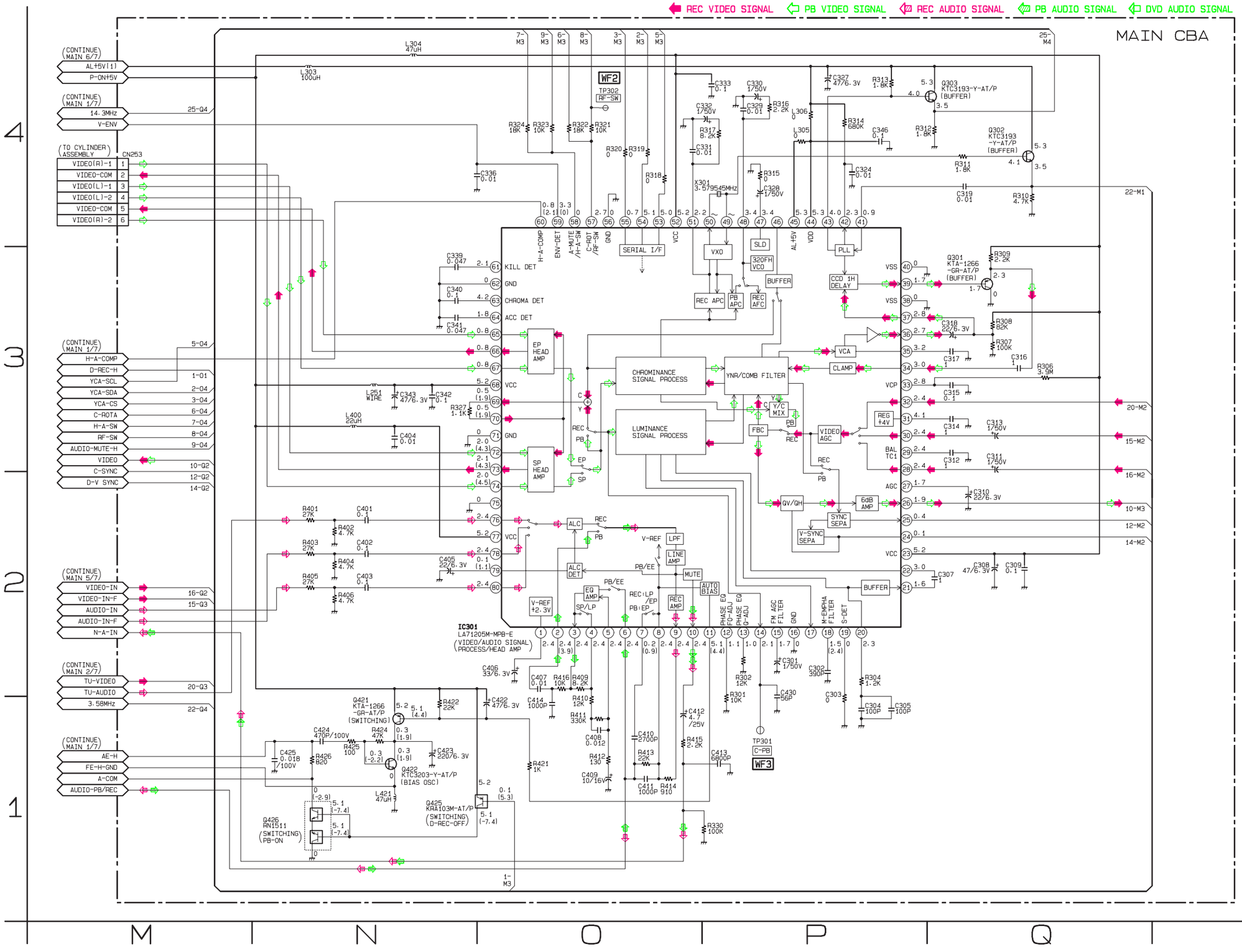
Main 1/7 Schematic Diagram < VCR Section >



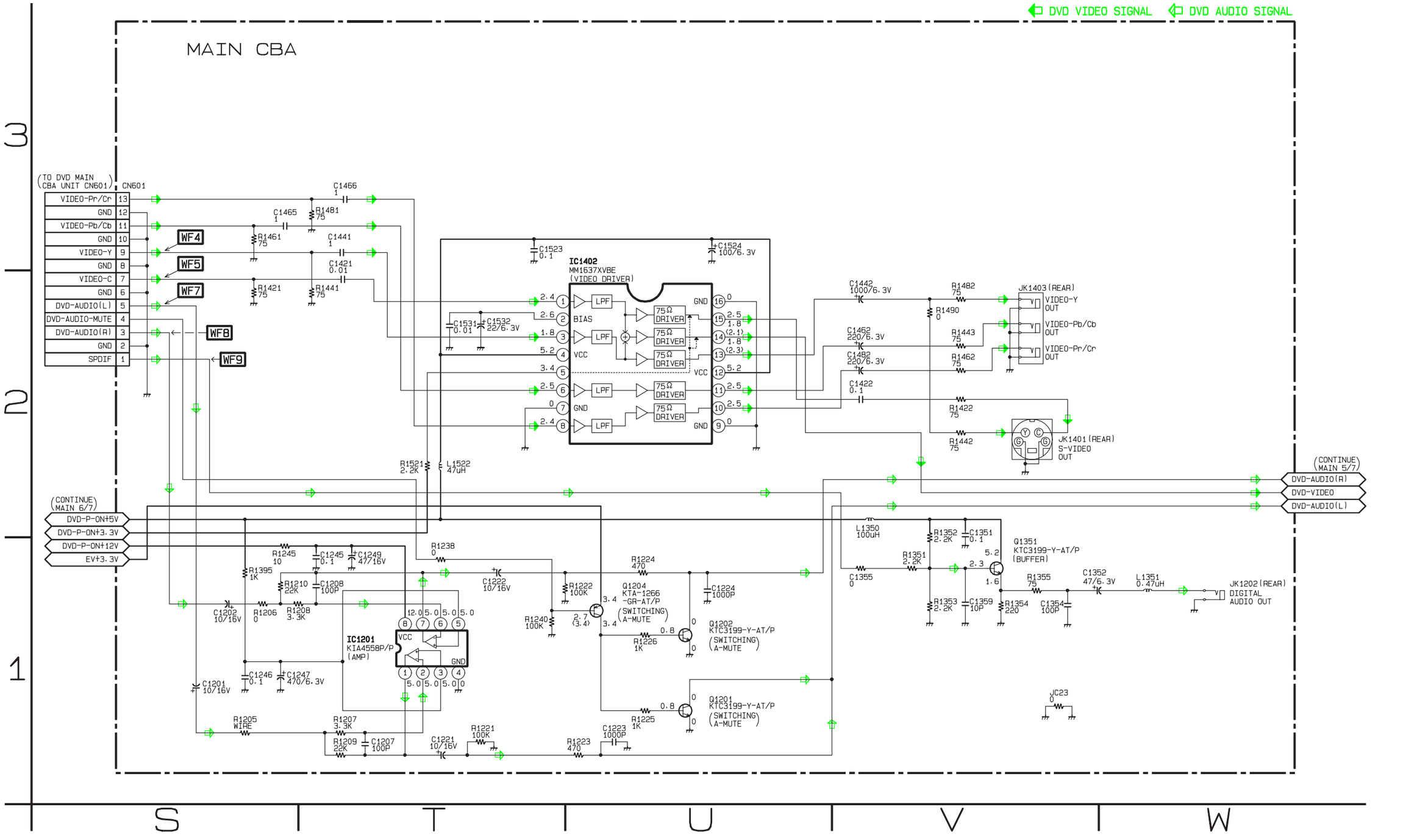
Main 2/7, Sensor Schematic Diagram < VCR Section >



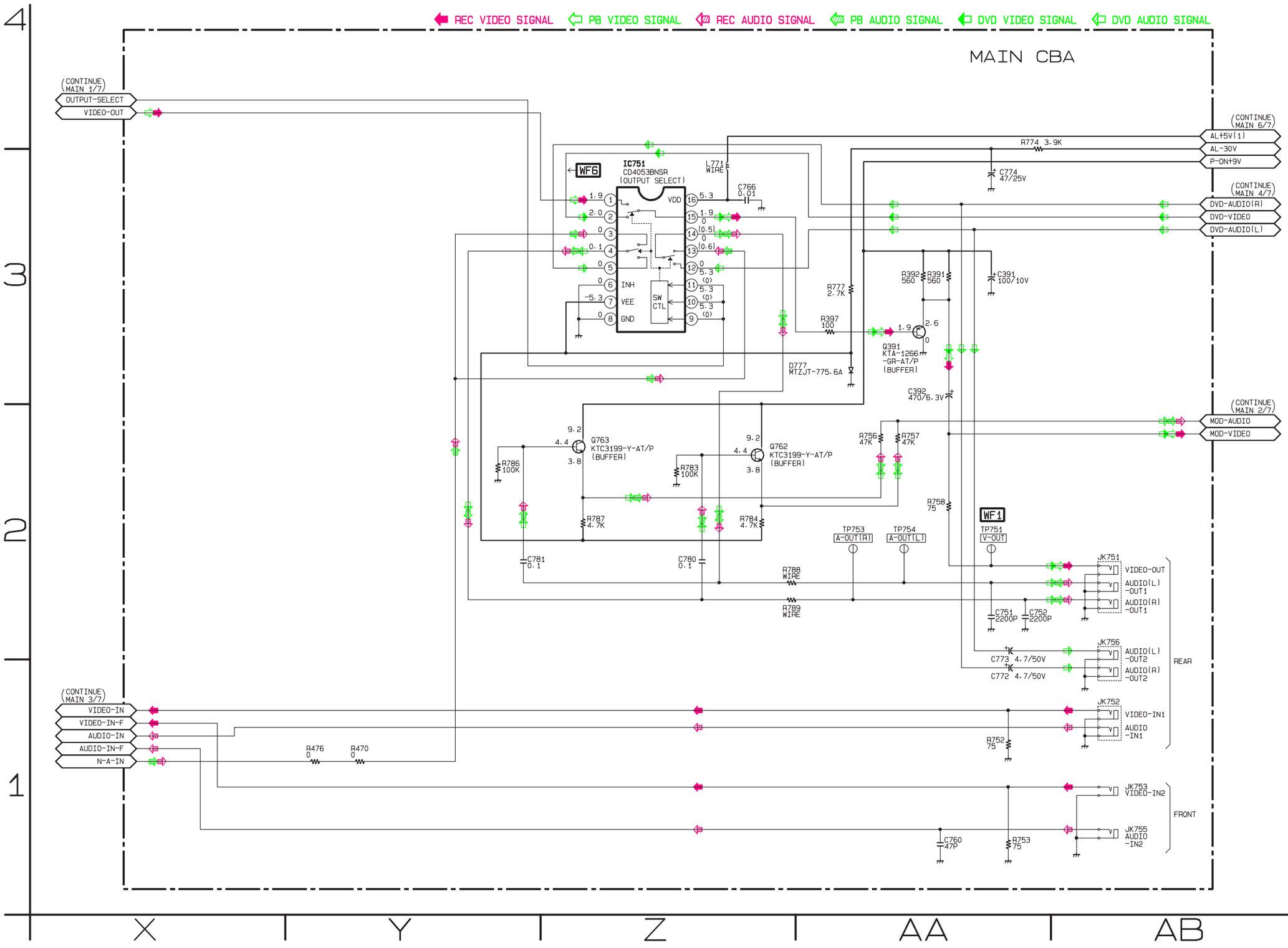
Main 3/7 Schematic Diagram < VCR Section >



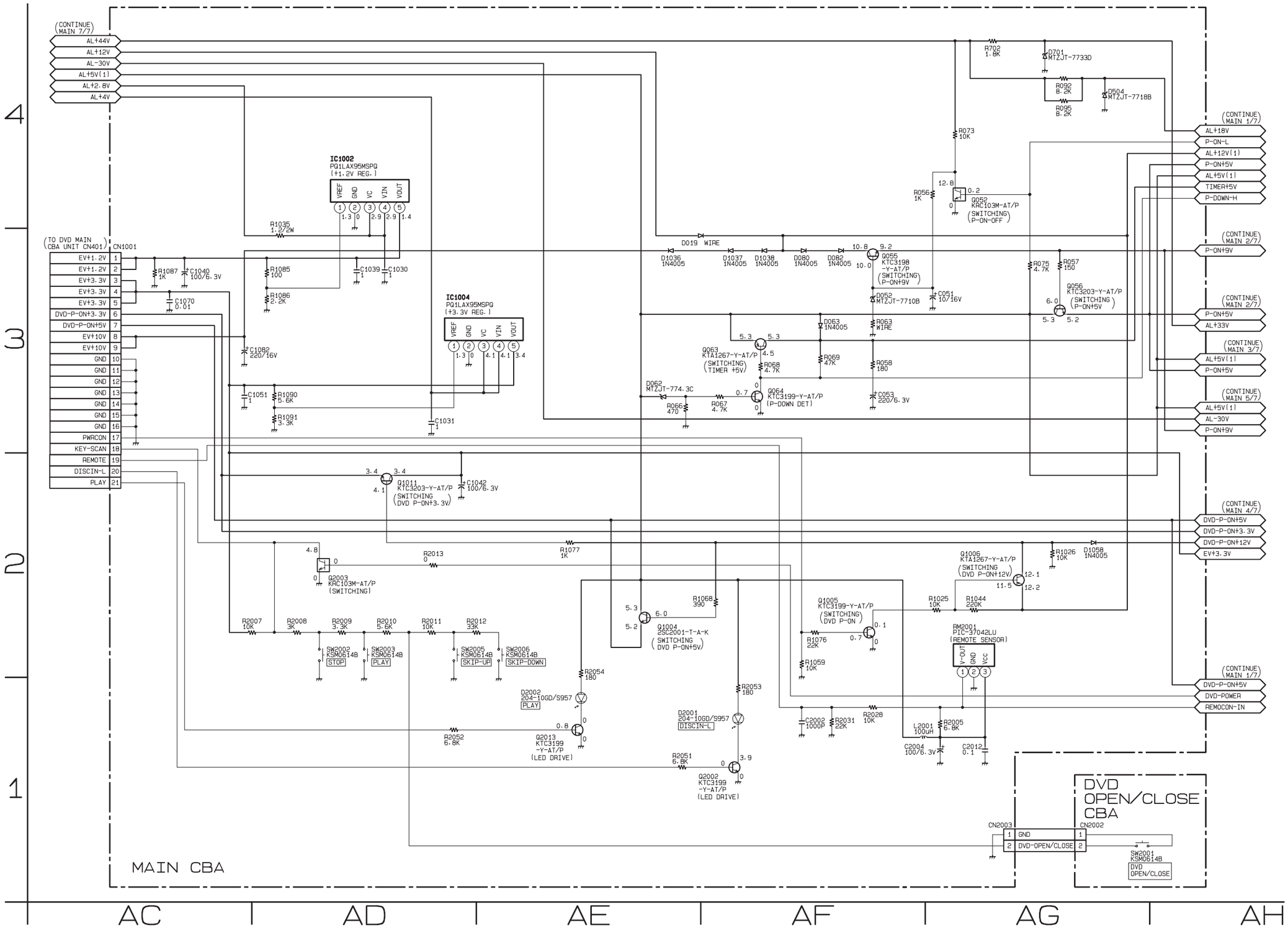
Main 4/7 Schematic Diagram < VCR Section >



Main 5/7 Schematic Diagram < VCR Section >



Main 6/7 & DVD Open/Close Schematic Diagram < VCR Section >

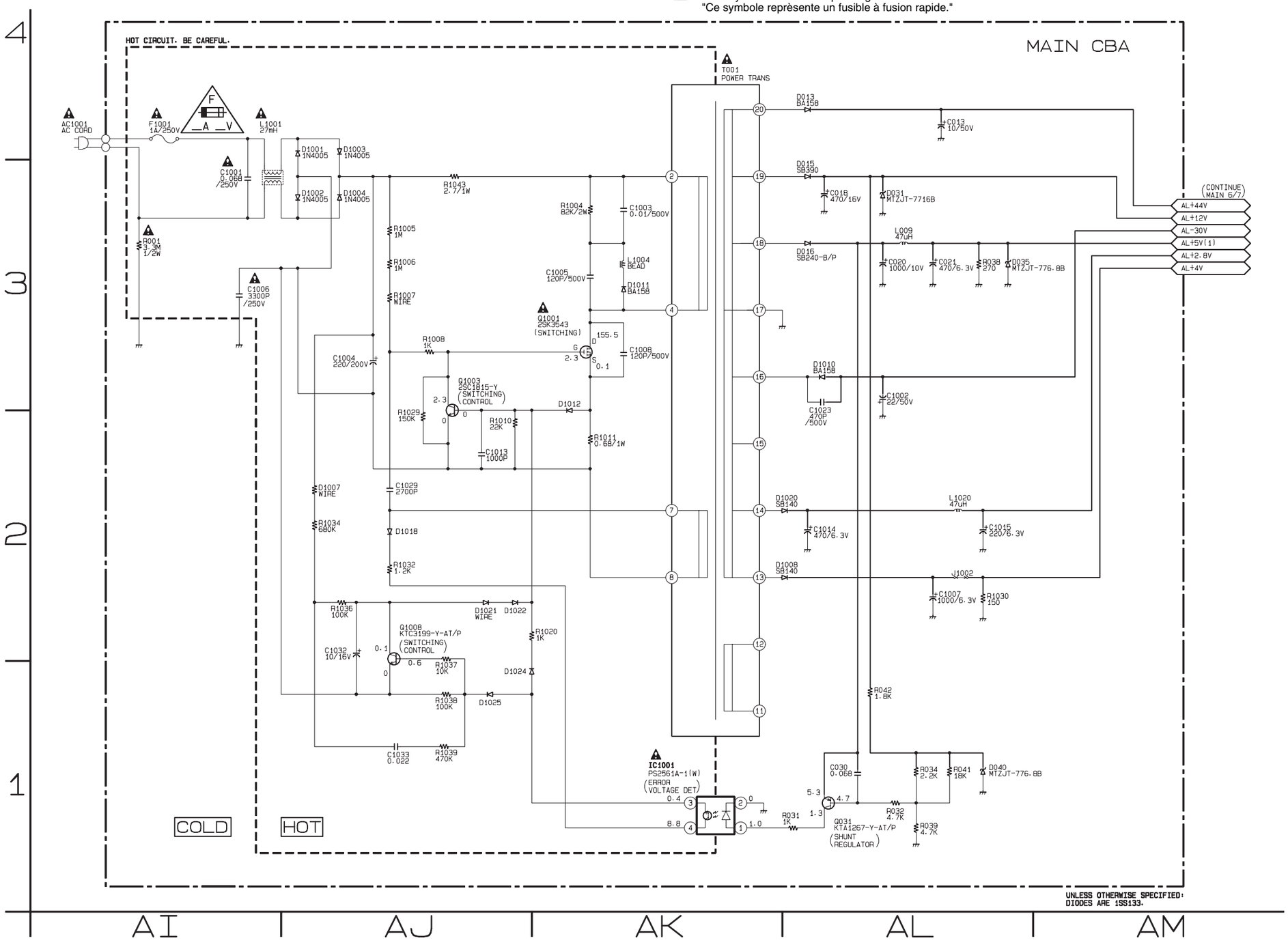


Main 7/7 Schematic Diagram < VCR Section >

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

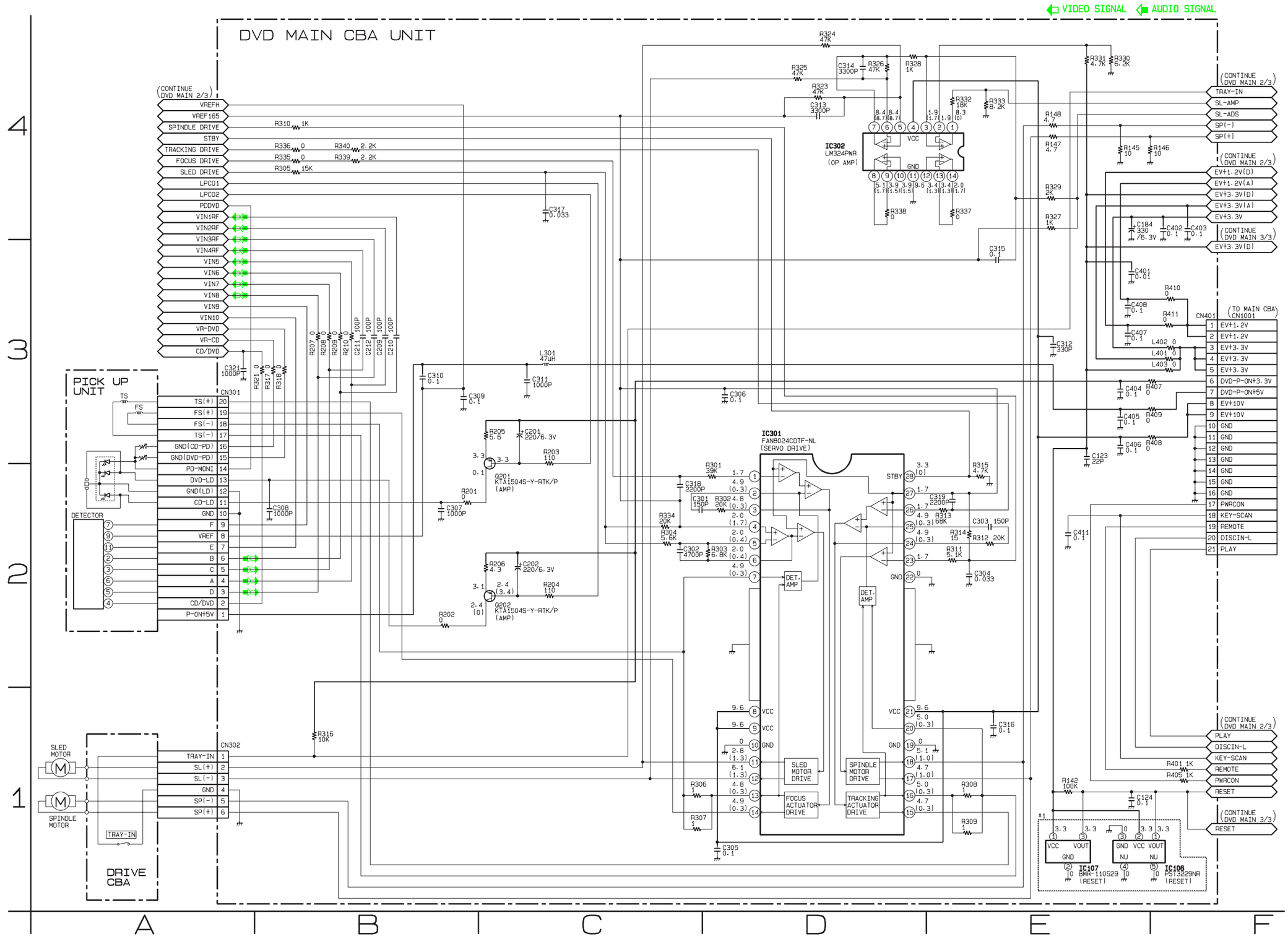
CAUTION !
For continued protection against fire hazard,
replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes d'Incele n'utiliser que des fusible de même type.
Risk of fire-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

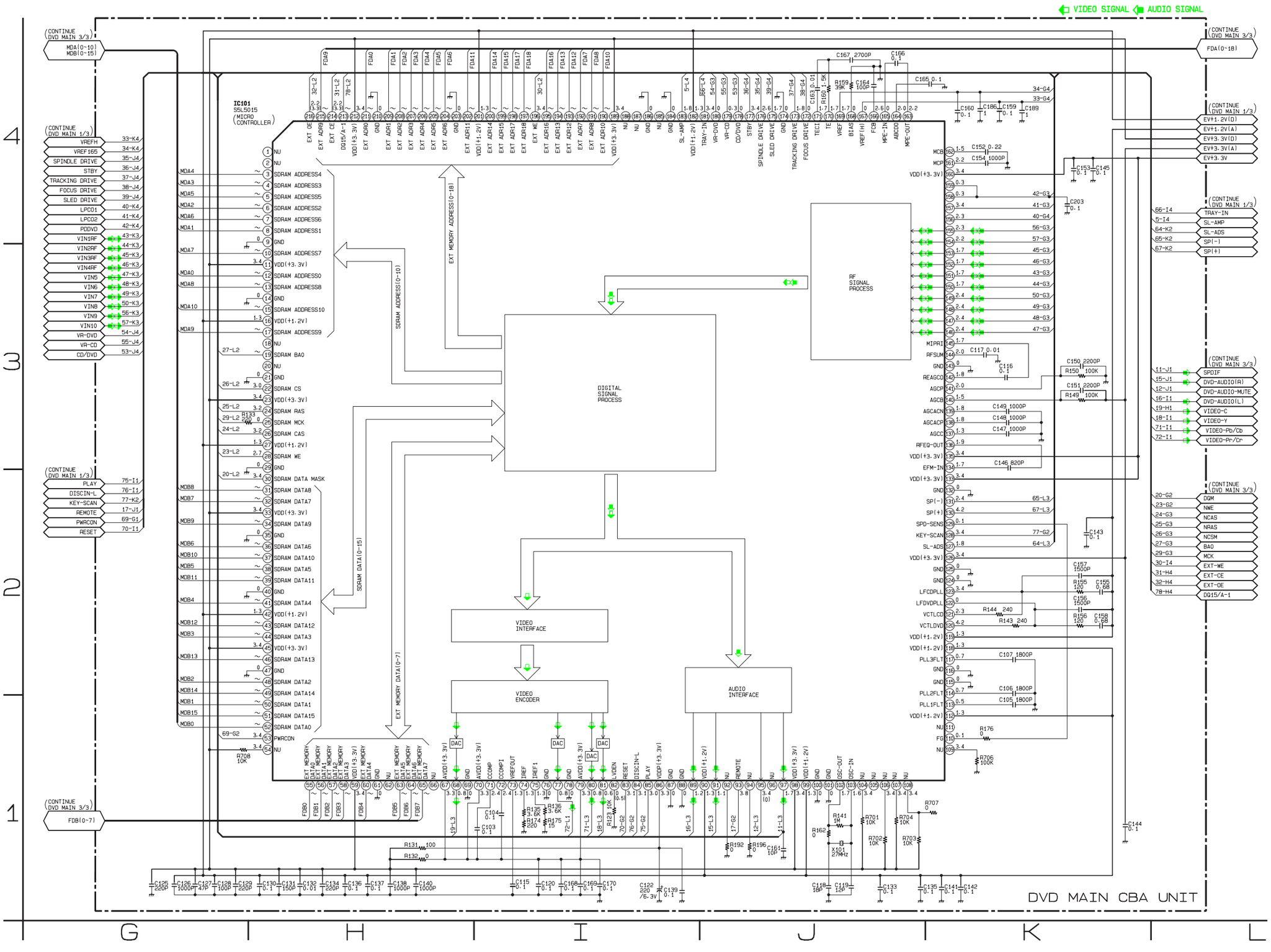


DVD Main 1/3 Schematic Diagram < DVD Section >

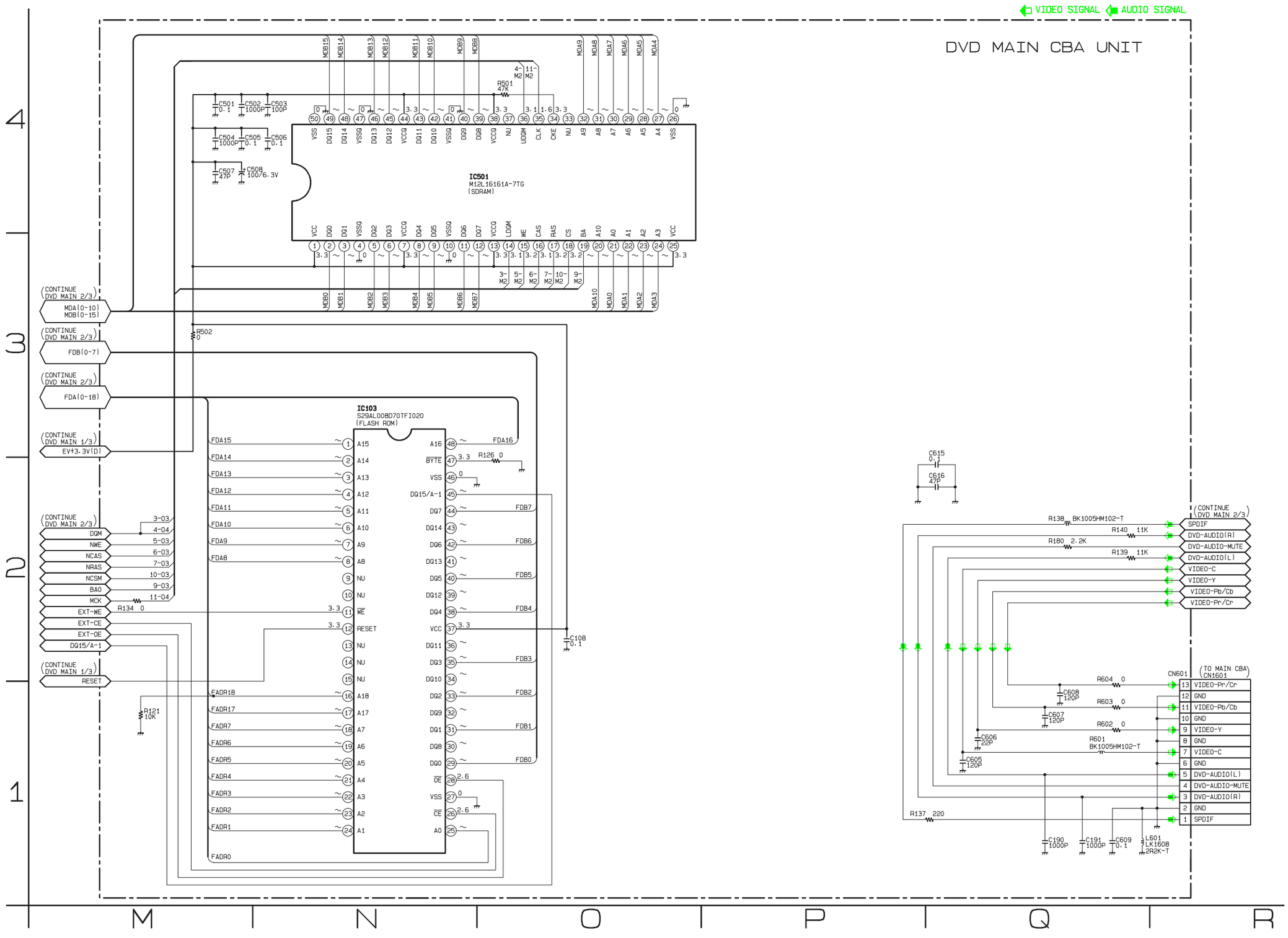
***1 NOTE:**
Either IC106 or IC107 is used for DVD MAIN CBA UNIT.



DVD Main 2/3 Schematic Diagram < DVD Section >

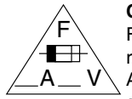


DVD Main 3/3 Schematic Diagram < DVD Section >



Main CBA Top View

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

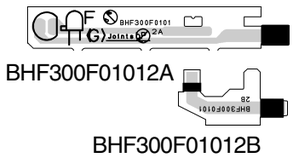


CAUTION !
For continued protection against fire hazard,
replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes
d'Incele n'utiliser que des fusible de même type.
Risk of fire-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

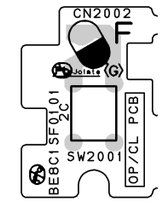
Because a hot chassis ground is present in the power supply circut, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly, when troubleshooting this type power supply circuit, a variable isolation transformer is required.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

Sensor CBA Top View



DVD Open/Close CBA Top View



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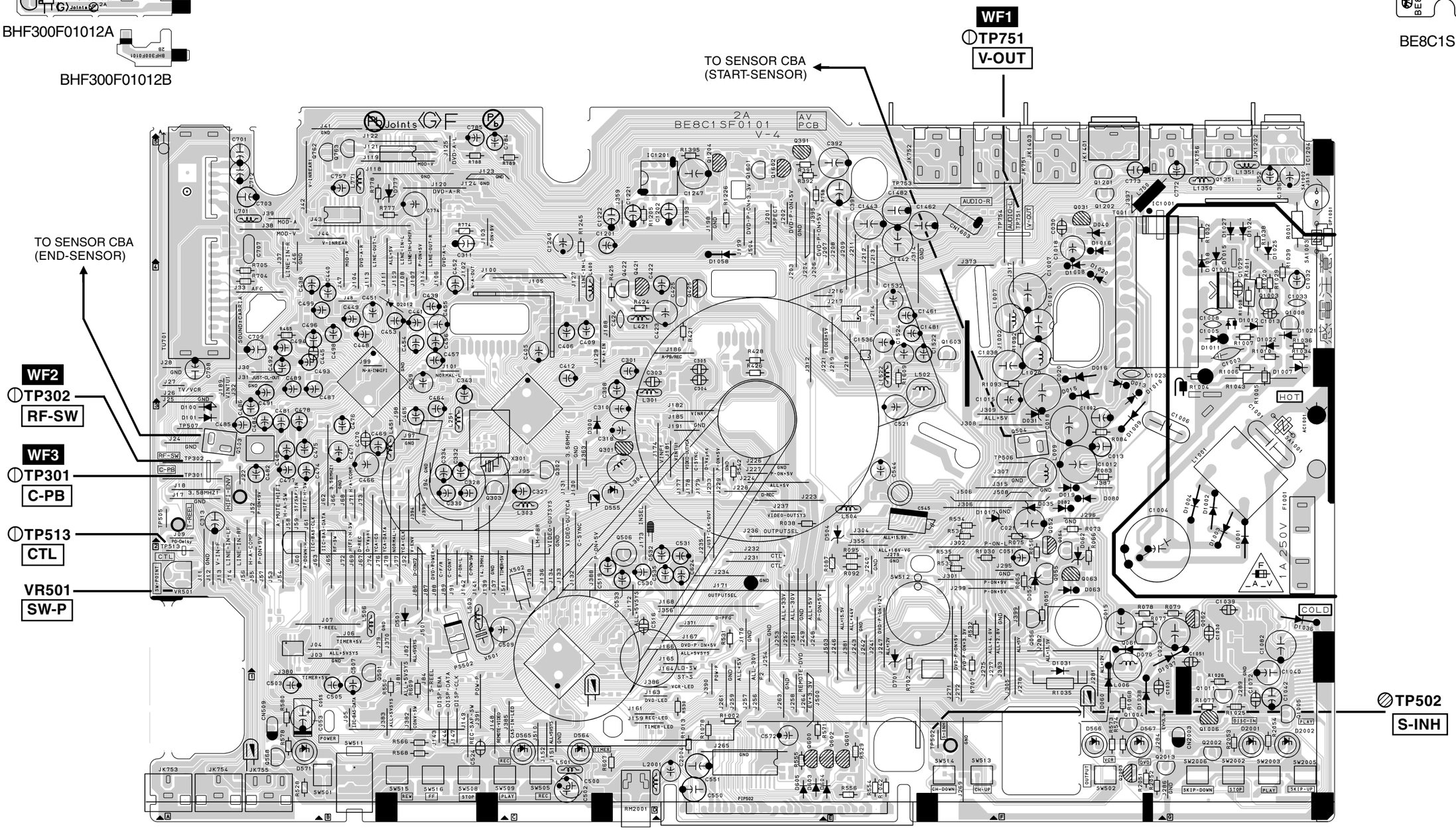


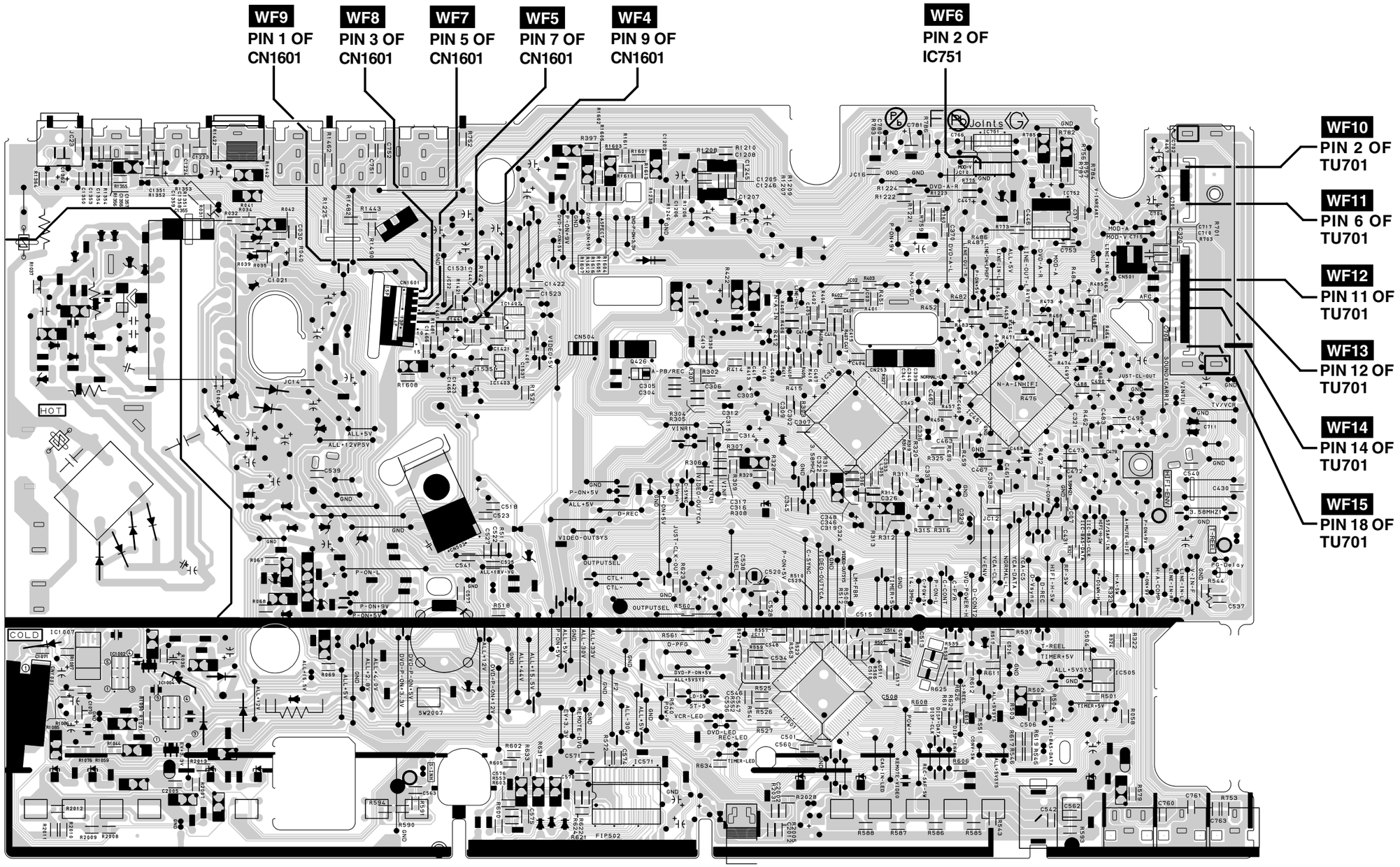
Main CBA Bottom View

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F1001) is blown , check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

CAUTION !
For continued protection against fire hazard,
replace only with the same type fuse.
ATTENTION : Pour une protection continue les risqes d'Incele n'utiliser que des fusible de même type.
Risk of fire-replace fuse as marked.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

Because a hot chassis ground is present in the power supply circut, an isolation transformer must be used. Also, in order to have the ability to increase the input slowly, when troubleshooting this type power supply circuit, a variable isolation transformer is required.

NOTE:
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



WAVEFORMS

NOTE:

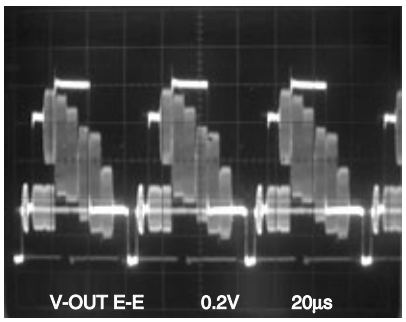
Input

VCR: COLOR BAR SIGNAL (WITH 1KHz AUDIO SIGNAL)
(WF1~WF3, WF10~WF15)

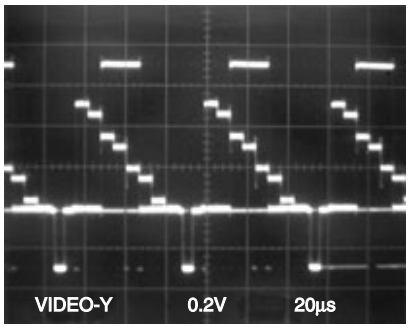
DVD: POWER ON (STOP) MODE
(WF4~WF6)

CD: 1kHz PLAY
(WF7~WF9)

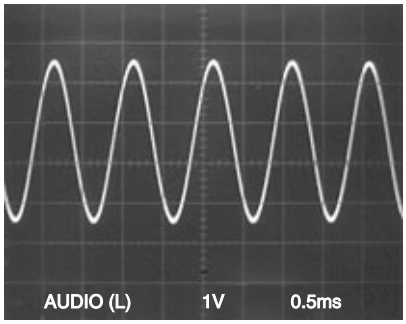
WF1 TP751



WF4 Pin 9 of CN1601

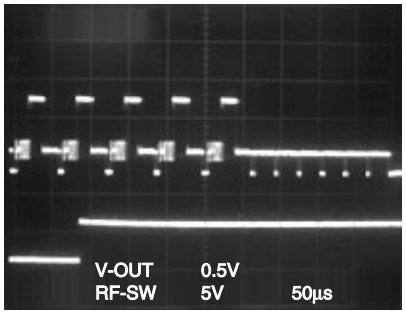


WF7 Pin 5 of CN1601

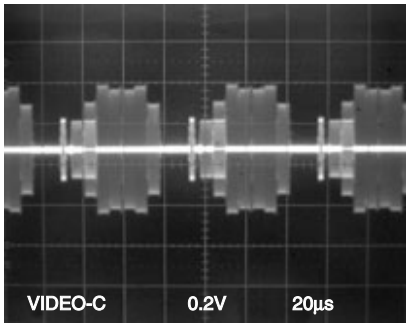


WF1 UPPER TP751

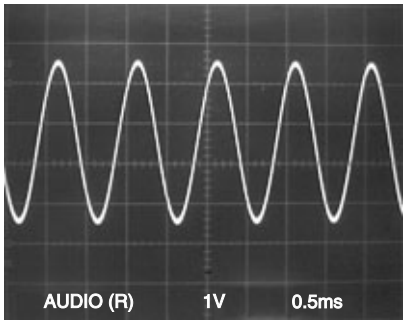
WF2 LOWER TP302



WF5 Pin 7 of CN1601

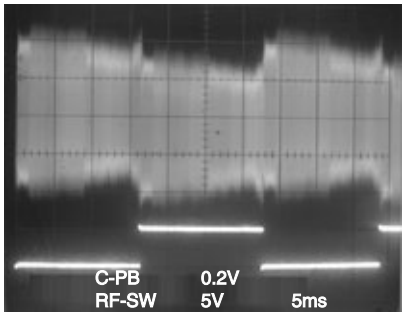


WF8 Pin 3 of CN1601

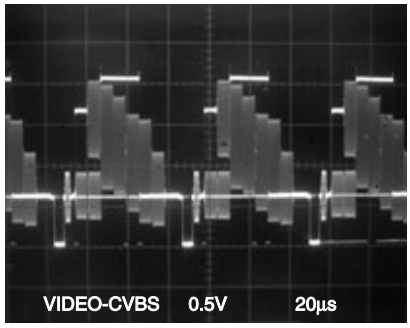


WF3 UPPER TP301

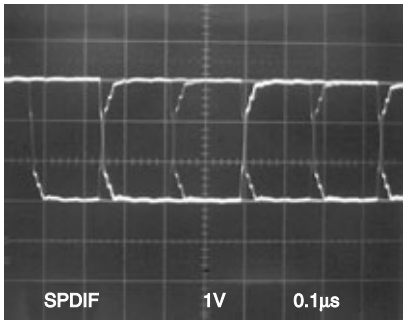
WF2 LOWER TP302



WF6 Pin 2 of IC751



WF9 Pin 1 of CN1601



NOTE:

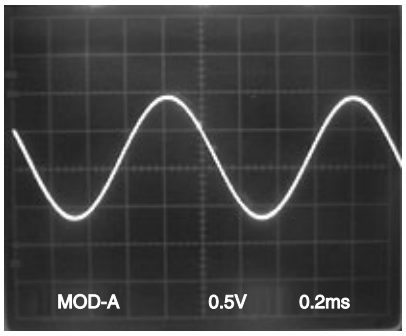
Input

VCR: COLOR BAR SIGNAL (WITH 1KHz AUDIO SIGNAL)
(WF1~WF3, WF10~WF15)

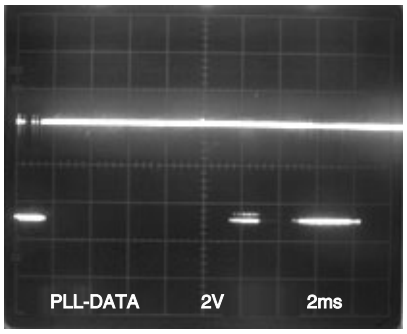
DVD: POWER ON (STOP) MODE
(WF4~WF6)

CD: 1kHz PLAY
(WF7~WF9)

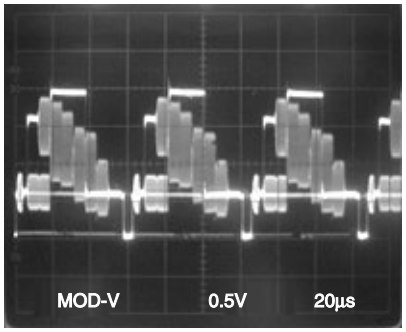
WF10 Pin 2 of TU701



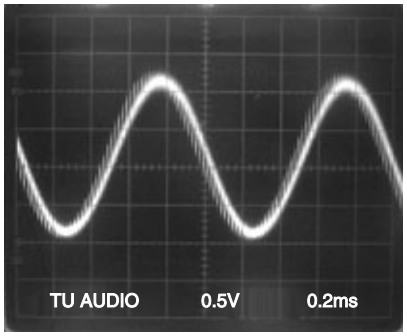
WF13 Pin 12 of TU701



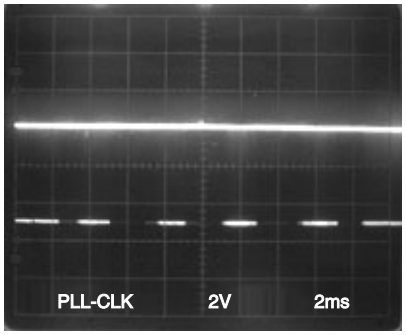
WF11 Pin 6 of TU701



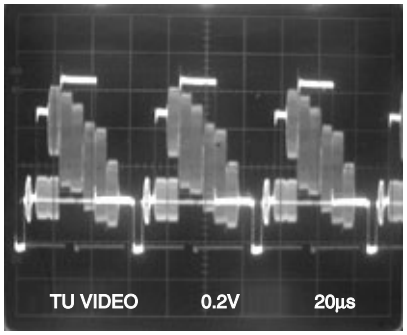
WF14 Pin 14 of TU701



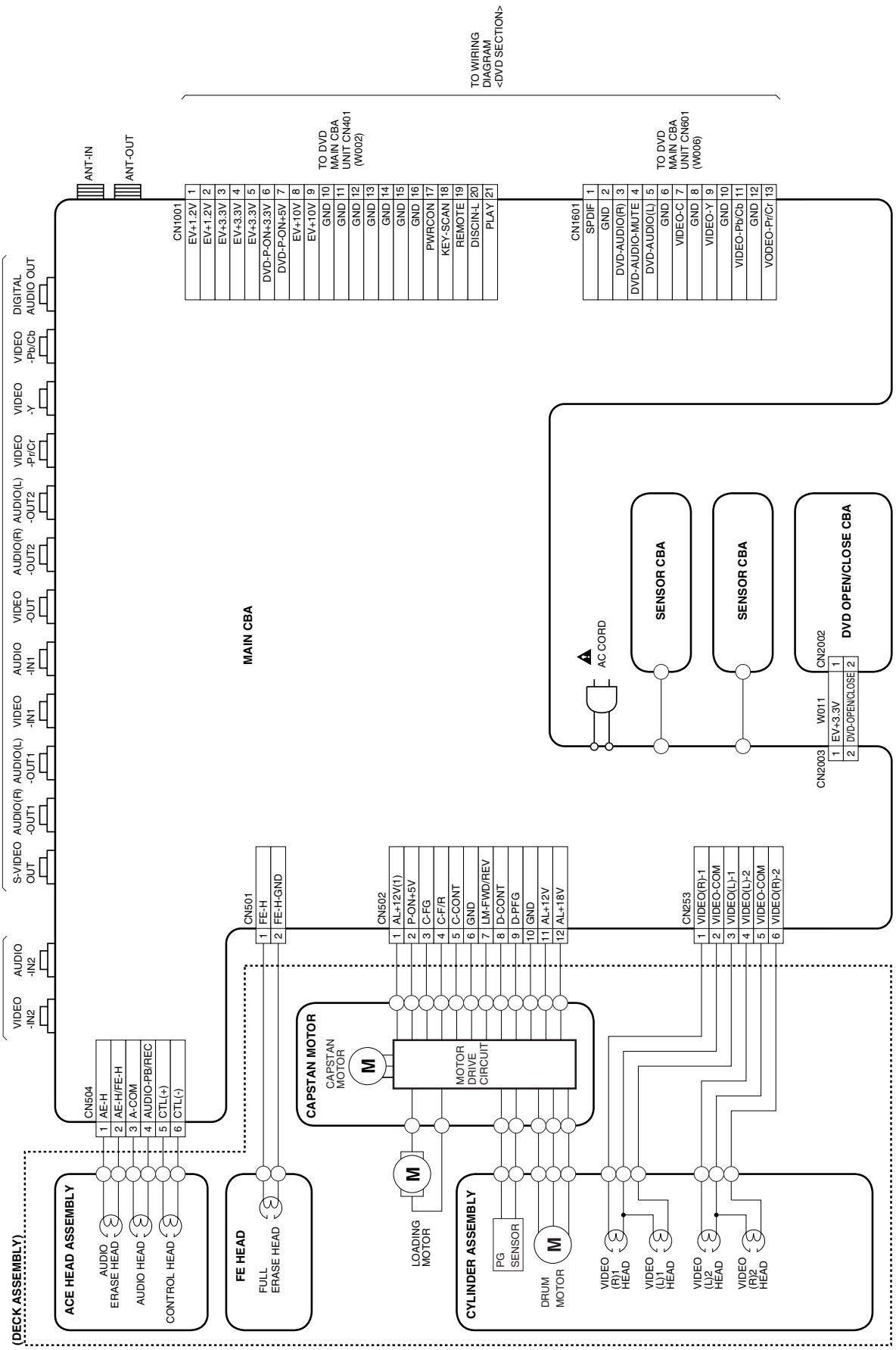
WF12 Pin 11 of TU701



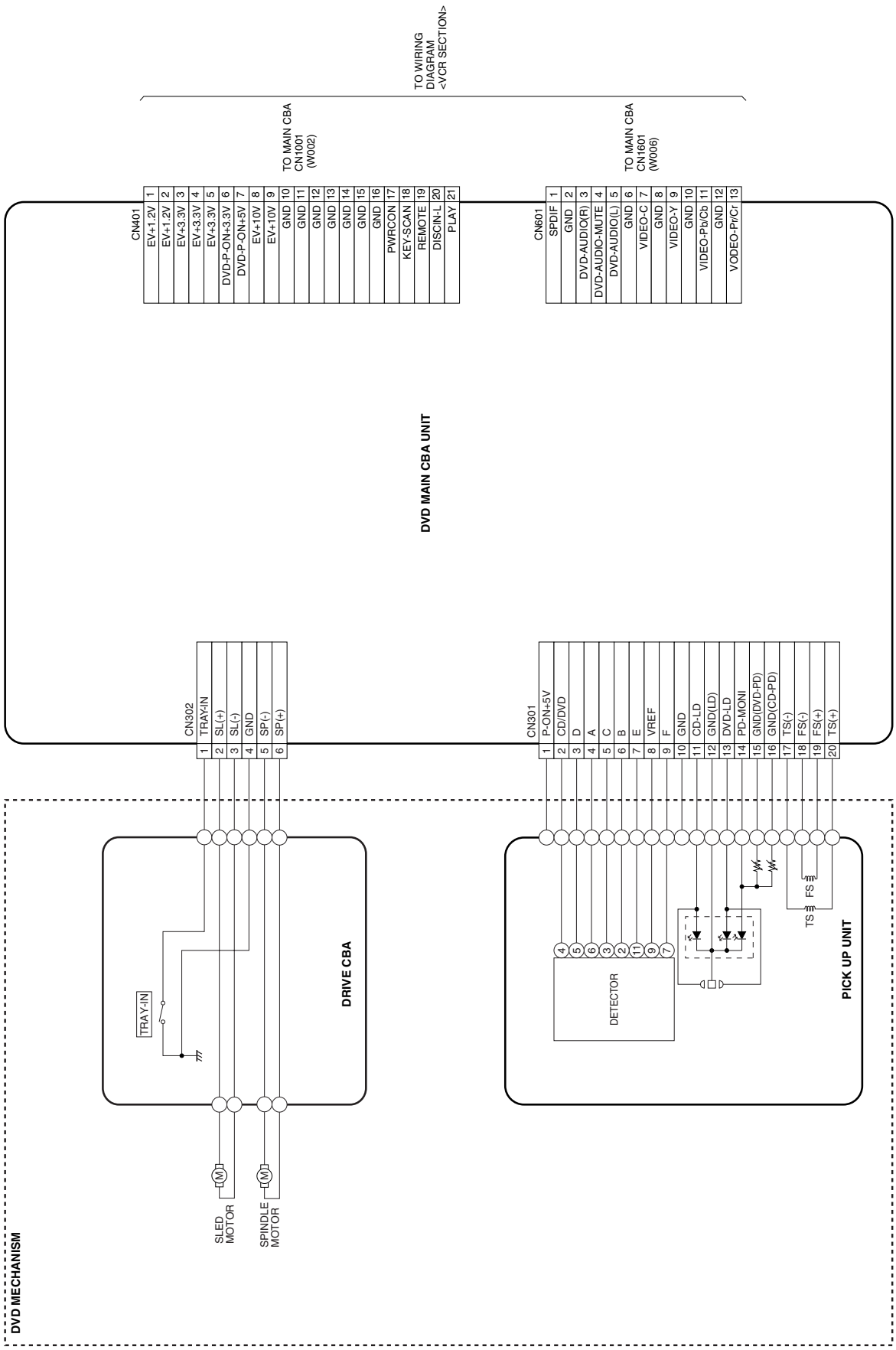
WF15 Pin 18 of TU701



WIRING DIAGRAM < VCR SECTION >



WIRING DIAGRAM < DVD SECTION >



SYSTEM CONTROL TIMING CHARTS

< VCR Section >

Mode SW: LD-SW

LD-SW Position detection A/D Input voltage Limit (Calculated voltage)	Symbol
3.76 V ~ 4.50 V (4.12 V)	EJ
4.51 V ~ 5.00 V (5.00 V)	CL
0.00 V ~ 0.25 V (0.00 V)	SB
1.06 V ~ 1.50 V (1.21 V)	TL
0.66 V ~ 1.05 V (0.91 V)	FB
1.99 V ~ 2.60 V (2.17 V)	SF
1.51 V ~ 1.98 V (1.80 V)	SM
3.20 V ~ 3.75 V (3.40 V)	AU
0.26 V ~ 0.65 V (0.44 V)	AL
4.51 V ~ 5.00 V (5.00 V)	SS
2.61 V ~ 3.19 V (2.97 V)	RS

Note:

Note: EJ ⟶ RS: Loading FWD (LM-FWD / REV “H”)
RS ⟶ EJ: Loading REV (LM-FWD / REV “L”)
Stop (A) = Loading
Stop (B) = Unloading

Note:

Symbol	Loading Status
EJ	Eject
CL	Eject ~ REW Reel
SB	REW Reel ~ Stop (B)
TL	Stop (B) ~ Brake Cancel
FB	Brake Cancel ~ FF / REW
SF	FF / REW ~ Stop (M), (FF / REW)
SM	Stop (M), (FF / REW) ~ Stop (A)
AU	Stop (A) ~ Play / REC
AL	Play / REC ~ Still / Slow
SS	Still / Slow ~ RS (REW Search)
RS	RS (REW Search)

Still/Slow Control Frame Advance Timing Chart

1) SP Mode

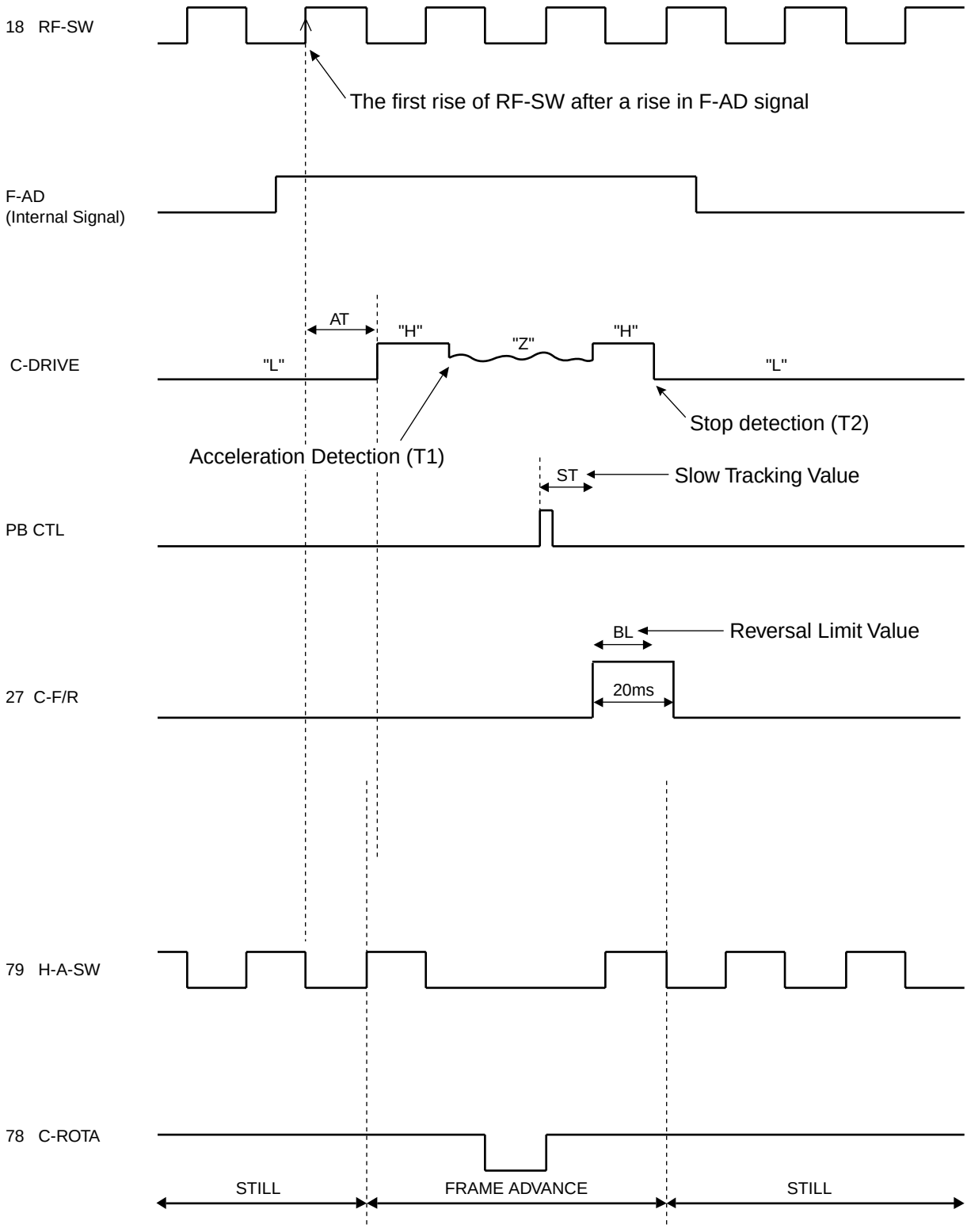


Fig. 1

2) LP/SLP Mode

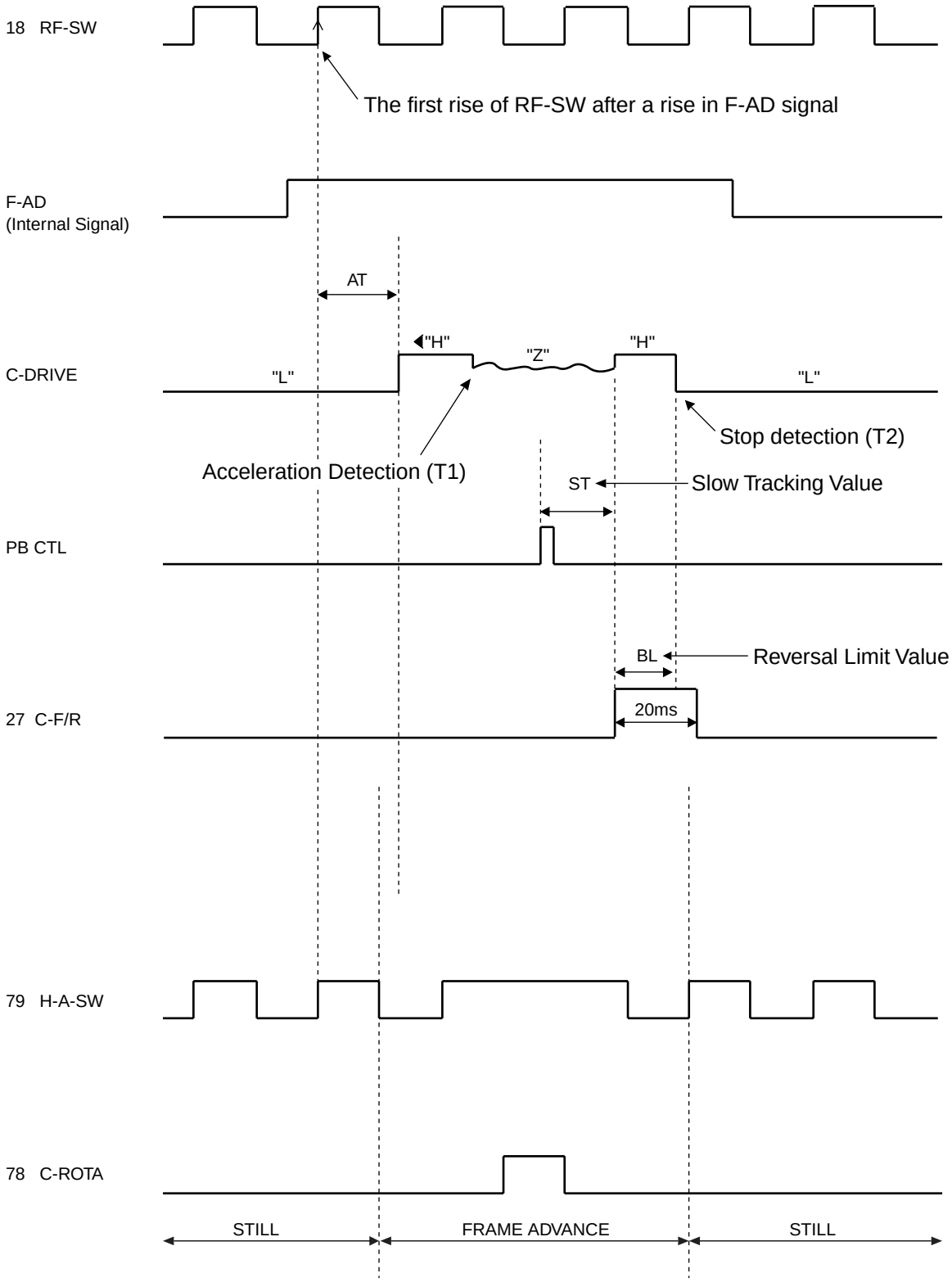


Fig. 2

1. EJECT (POWER OFF) -> CASSETTE IN (POWER ON) -> STOP(B) -> STOP(A) -> PLAY -> RS -> FS -> PLAY -> STILL -> PLAY -> STOP(A)

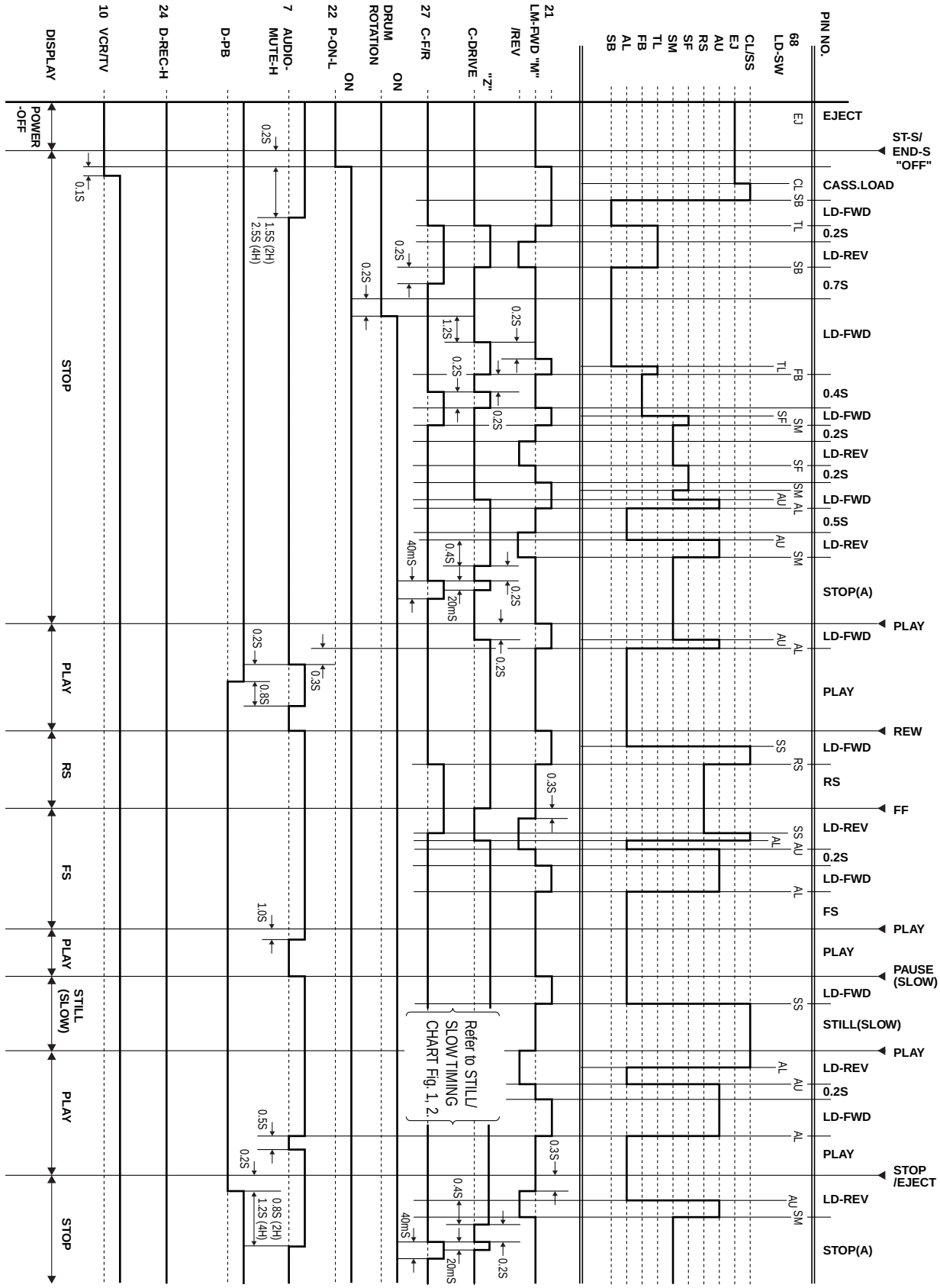


Fig. 3

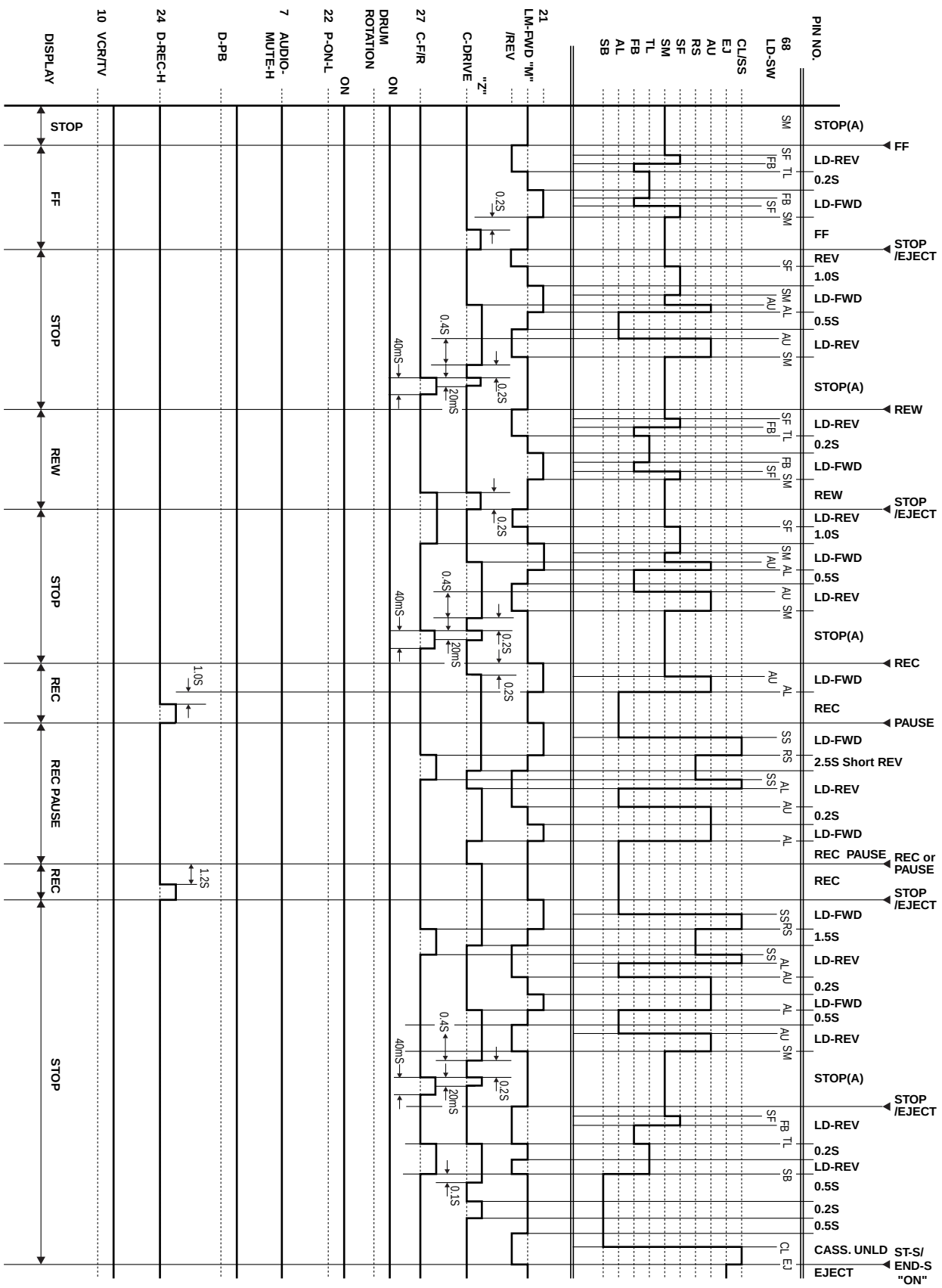
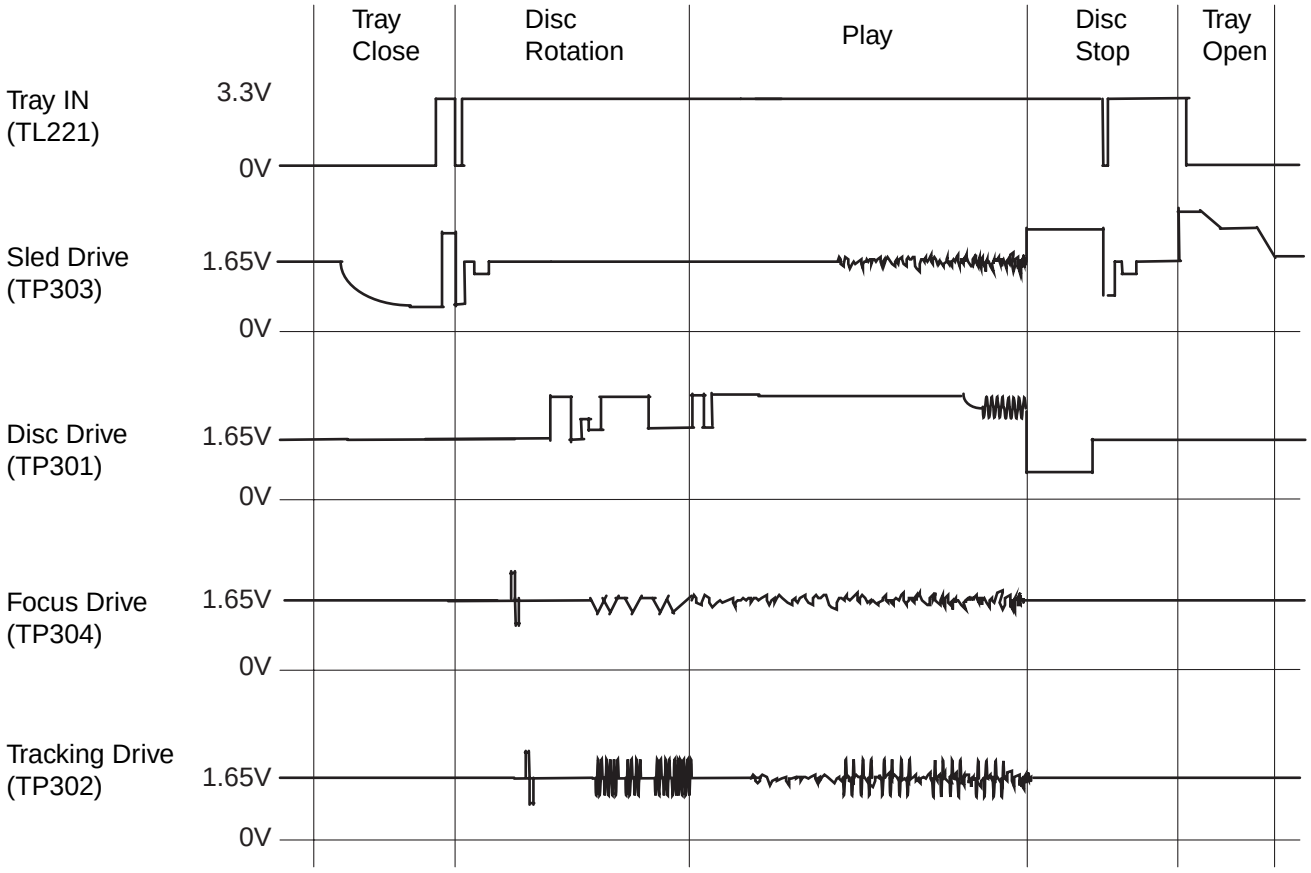

2. STOP(A) -> FF -> STOP(A) -> REW -> STOP(A) -> REC -> PAUSE -> PAUSE or REC -> STOP(A) -> EJECT
PIN NO.
68 LD-SW
CL/SS
EJ
AU
RS
SF
SM
TL
FB
AL
SB
21 LM-FWD "M" /REV
"Z" C-DRIVE
27 C-F/R
ON DRUM ROTATION
22 P-ON-L
ON
7 AUDIO-MUTE-H
D-PB
24 D-REC-H
10 VCR/TV
DISPLAY
STOP
FF
STOP
REW
STOP
REC
REC PAUSE
REC
STOP
STOP(A)
FF
LD-REV
0.2S
LD-FWD
FF
REV
1.0S
LD-FWD
0.5S
LD-REV
STOP(A)
REW
LD-REV
0.2S
LD-FWD
REW
LD-REV
1.0S
LD-FWD
0.5S
LD-REV
STOP(A)
REC
LD-FWD
REC
PAUSE
LD-FWD
2.5S Short REV
LD-REV
0.2S
LD-FWD
REC PAUSE
REC
LD-FWD
1.5S
LD-REV
0.2S
LD-FWD
0.5S
LD-REV
STOP(A)
LD-REV
0.2S
LD-REV
0.5S
0.2S
0.5S
CASS. UNLD
EJECT
FF
STOP /EJECT
REW
STOP /EJECT
REC or PAUSE
STOP /EJECT
STOP /EJECT
ST-S/ END-S "ON"
0.2S
0.4S
40mS
20mS
1.0S
1.2S
0.1S

Fig. 4

< DVD Section >

Tray Close ~ Play / Play ~ Tray Open



IC PIN FUNCTION DESCRIPTIONS

< VCR Section >

IC501 (SERVO/SYSTEM CONTROL/OSD)

"H" ≥ 4.5 V, "L" ≤ 1.0 V

Pin No.	IN/ OUT	Signal Name	Function	Active Level
1	IN	P-DOWN -H	Power Voltage Down Detector Signal	H
2	IN	REC-SAF-SW	Recording Safety SW Detect (With Record tab = "L" / With out Record tab = "H")	H/L
3	IN	T-REEL	Take Up Reel Rotation Signal	PULSE
4	-	NU	Not Used	-
5	IN	REMOCON -IN	Remote Control Sensor	H/L
6	-	NU	Not Used	-
7	OUT	AUDIO-MUTE-H	Audio Mute Control Signal (Mute = "H")	H
8	-	NU	Not Used	-
9	-	NU	Not Used	-
10	OUT	VCR/TV	RF Conv. ON/OFF Signal (VCR = "H"/ TV = "L")	H/L
11	OUT	CONV-SW	RF Conv. Output Channel Switching Signal (3ch = "Hi-z", 4ch = "L")	Hi-z/L
12	IN/ OUT	IIC-BUS-SDA	IIC BUS Control Data	H/L
13	OUT	IIC-BUS-SCL	IIC BUS Control Clock	H/L
14	OUT	YCA-SCL	YCA IC Control Clock	H/L
15	OUT	YCA-SDA	YCA IC Control Data	H/L
16	OUT	YCA-CS	YCA IC Control Chip Select	H
17	-	NU	Not Used	-
18	OUT	RF-SW	Video Head Switching Pulse	H/L
19	OUT	D-V SYNC	Dummy V-sync Output	H/Hi-z
20	IN	RESET	System Reset Signal (Reset = "L")	L
21	OUT	LM-FWD/ REV	Loading Motor FWD/ REV Output	H/Z/L
22	OUT	P-ON-L	Power On Signal to Low	L
23	-	NU	Not Used	-
24	OUT	D-REC-H	Delayed Record Signal	H
25	-	NU	Not Used	-
26	OUT	DVD-POWER	DVD Power Control Signal	H
27	OUT	C-F/R	Capstan Motor FWD/REV Control Signal (FWD = "L" / REV = "H")	H/L
28	OUT	C-CONT	Capstan Motor Control Signal	PWM
29	OUT	D-CONT	Drum Motor Control Signal	PWM
30	-	NU	Not Used	-
31	-	VDD	VDD	-
32	OUT	OSCO	Main Clock Output 14.31818MHz	-
33	IN	OSCI	Main Clock Input 14.31818MHz	-
34	-	VSS	VSS	-
35	IN	XI	Sub Clock Input 32.768 KHz	-
36	OUT	XO	Sub Clock Output 32.768 KHz	-
37	IN	SXI	Operation Mode Selecting Input Signal	-
38	OUT	VIDEO-OUT	Composite Video Signal Output	-
39	-	Vss2	Vss2	-
40	IN	VIDEO-IN	Composite Video Signal Input	-
41	IN	C-SYNC	Composite Synchronized Pulse	PULSE
42	-	VDD2	VDD2	-
43	IN	AFCC	Low Path Filter Input Signal For AFC	-
44	OUT	AFCLPF	Low Path Filter Output Signal For AFC	-
45	-	NU	Not Used	-

Pin No.	IN/ OUT	Signal Name	Function	Active Level
46	OUT	OUTPUT-SELECT	Output Select	H/L
47	IN	D-PFG	Drum PG/FG Input Signal	PULSE
48	IN	POWER-SAFETY	P-ON Power Supply Abnormal Detection Input	L
49	IN	C-FG	Capstan Motor Rotation Detection Pulse	PULSE
50	-	AFG	GND	-
51	OUT	VRO	Servo Standard Voltage Output	-
52	IN	VRI	Servo Standard Voltage Input	-
53	-	AVss	AVSS	-
54	IN	CTLA	CTL Amp. AC GND	-
55	-	AVDD	AVDD	-
56	IN/ OUT	CTL (+)	Playback/Record Control Signal (+)	-
57	IN/ OUT	CTL (-)	Playback/Record Control Signal (-)	-
58	OUT	CTL	Amp. Output Control Signal for Test Point	-
59	-	NU	Not Used	-
60	IN	DVD-POW-MONITOR	DVD Power Monitor Signal (P-off = “L”, P-on = “H”)	H/L
61	-	NU	Not Used	-
62	IN	END-S	Tape End Position Detect Signal	A/D
63	IN	AFC	Automatic Frequency Control Signal	A/D
64	IN	V-ENV	Video Envelope Comparator Signal	A/D
65	IN	PG-DELAY	Video Head Switching Pulse Signal Adjusted Voltage	A/D
66	IN	KEY-2	A/D Key Data Signal 2	A/D
67	IN	KEY-1	A/D Key Data Signal 1	A/D
68	IN	LD-SW	Deck Mode Position Detector Signal	A/D
69	IN	ST-S	Tape Start Position Detector Signal	A/D
70	OUT	VCR-LED-L	VCR Mode LED Signal Output	L
71	OUT	VCR-LED-L	VCR Mode LED Signal Output	L
72	OUT	DVD-LED-L	DVD Mode LED Signal Output	L
73	OUT	DVD-LED-L	DVD Mode LED Signal Output	L
74	OUT	REC-LED-L	REC Mode LED Signal Output	L
75	OUT	REC-LED-L	REC Mode LED Signal Output	L
76	OUT	TIMER-LED-L	TIMER Mode LED Signal Output	L
77	OUT	TIMER-LED-L	TIMER Mode LED Signal Output	L
78	OUT	C-ROTA	Color Phase Rotary Changeover Signal	H/L
79	OUT	H-A-SW	Video Head Amp Switching Pulse	H/L
80	IN	H-A-COMP	Head Amp Comparator Signal	H/L

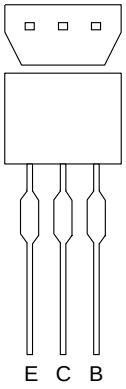
Notes:

Abbreviation for Active Level:

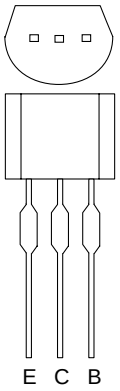
PWM ----- Pulse Wide Modulation

A/D -------- Analog - Digital Converter

LEAD IDENTIFICATIONS



KRA103M-AT/P
KRC103M-AT/P
KTA-1266-GR-AT/P
KTA1267-Y-AT/P
KTC3193-Y-AT/P
KTC3199-(Y,BL)-AT/P



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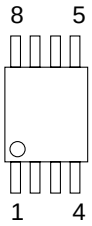
KTC3198-Y-AT/P
KTC3203-Y-AT/P
2SC2001-T-A-K

KIA4558P/P



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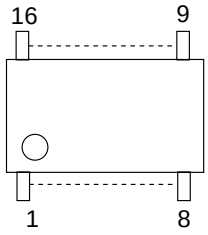
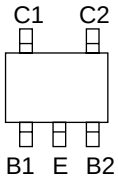


PS2561A-1(W)

1: Anode
2: Cathode
3: Emitter
4: Collector

RN1511(TE85R.F)



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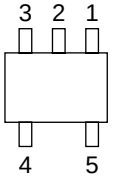
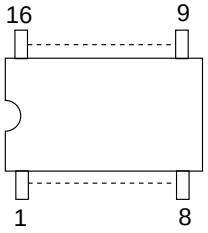


1: VREF
2: GND
3: VC
4: VIN
5: VOUT

CD4053BNSR



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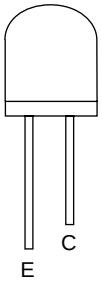

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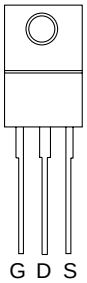

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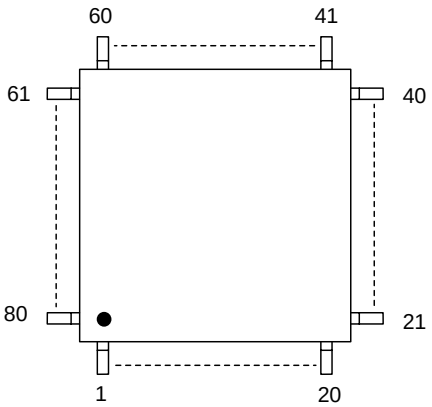
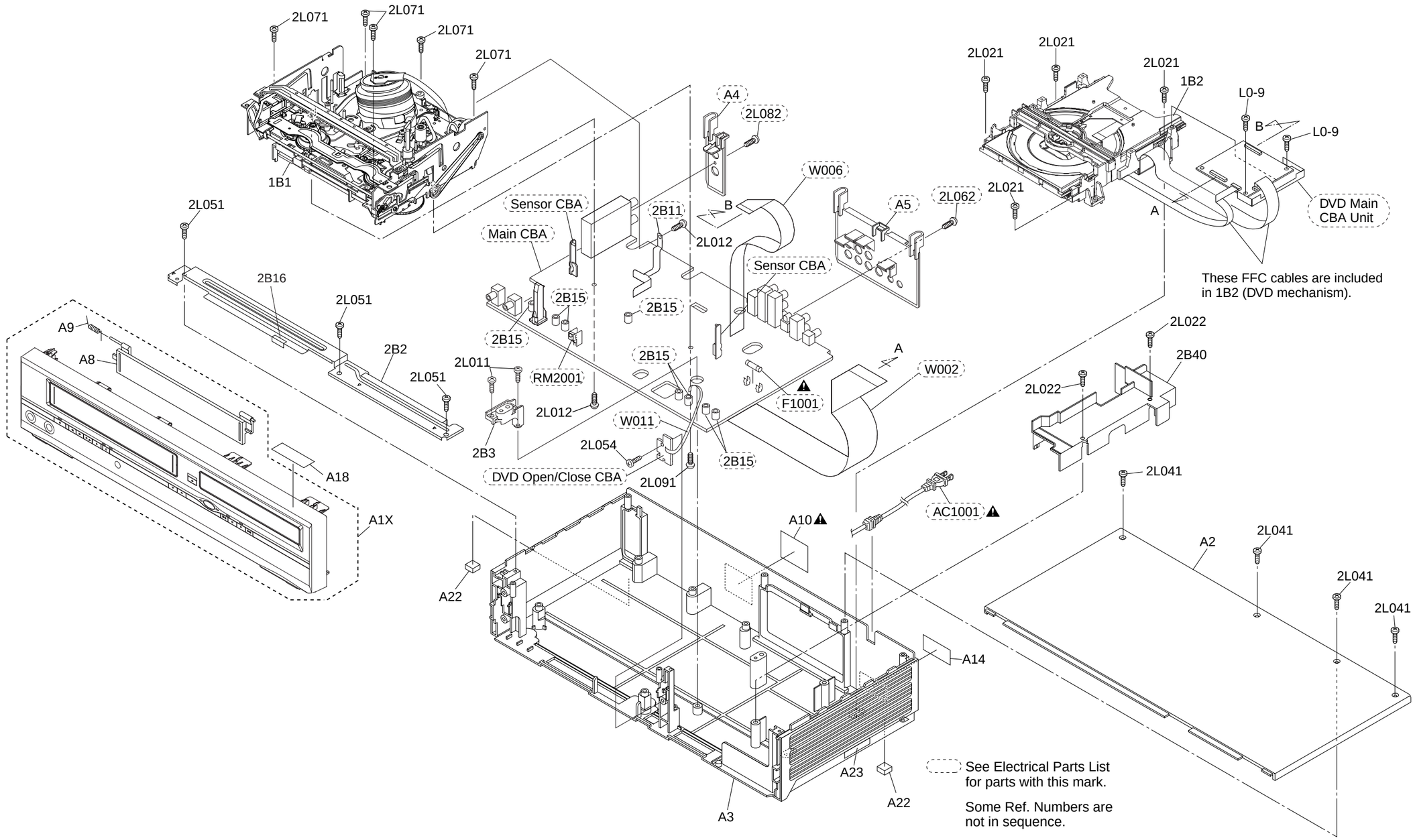


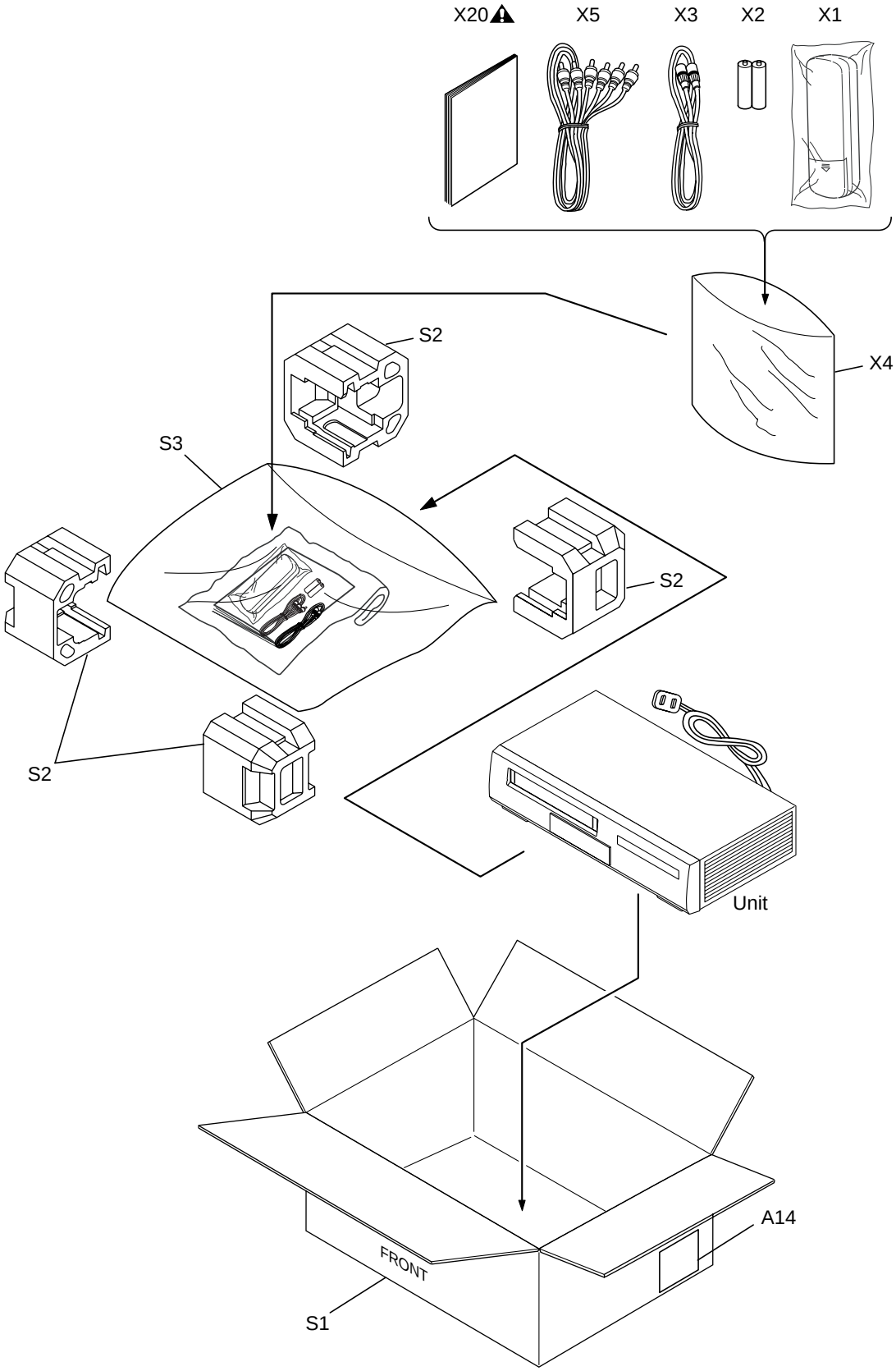
Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
S: Source
G: Gate
D: Drain

EXPLODED VIEWS

Cabinet



Packing



MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE: Parts that are not assigned part numbers (---------) are not available.

Ref. No.	Description	Part No.
A1X	FRONT ASSEMBLY E8C1TCD	1VM222713
A2	TOP CASE E8C1TCD	1VM323281
A3	CHASSIS E8C1TCD	1VM222715
A8	CASSETTE DOOR E8C1TCD	1VM424878
A9	DOOR SPRING HF410UD	1VM421240
A10⚠	RATING LABEL(U) E8C1TCD	----------
A14	LABEL BAR CODE HB400UD	----------
A18	TEL NUMBER LABEL H9811UD(SV2000)	----------
A22	CHASSIS FOOT H79P9JD	0VM412315
A23	LABEL EAS L0951UB	----------
1B1	DECK ASSEMBLY CZD014/VM2440	N2440FL
1B2	DVD MECHA D7.5S N79F4KVM	N79F4KVM
2B2	TOP BRACKET H9600UD	0VM204470
2B3	LOADER HOLDER H9600UD	0VM306676
2B16	TAPE HIMELON H9206JD	0VM413956
2B40	PARTITION PLATE E8A00UD	1VM321985
2L011	SCREW P-TIGHT M3X8 BIND HEAD+	GBJP3080
2L012	SCREW S-TIGHT M3X6 BIND HEAD+	GBJS3060
2L021	SCREW P-TIGHT M3*12 BIND+	GBJP3120
2L022	SCREW P-TIGHT M3X8 BIND HEAD+	GBJP3080
2L041	SCREW P-TIGHT 3X10 BIND HEAD+	GBHP3100
2L051	SCREW P-TIGHT M3X6 BIND HEAD+	GBJP3060
2L054	SCREW P-TIGHT M3X6 BIND HEAD+	GBJP3060
2L071	SCREW P-TIGHT M3*10 WASHERHEAD+	GCJP3100
2L091	SCREW P-TIGHT M3X8 BIND HEAD+	GBCP3080
L0-9	SCREW P-TIGHT M3*12 BIND+	GBJP3120
	PACKING	
S1	GIFT BOX CARTON E8C1TCD	1VM323365
S2	STYROFOAM H9600UD	0VM204474E
S3	UNIT BAG E5500UD	0VM411683
	ACCESSORIES	
X1	REMOTE CONTROL UNIT NB655CD	NB655CD
X2	DRY BATTERY R6P/2S	XB0M451T0001
X3	RF CABLE 2.5C-2V	WPZ0901TM002
X4	ACCESSORY BAG E5700UD	0VM415576
X5	AV CORD WPZ0102TM015	WPZ0102TM015
X20⚠	OWNERS MANUAL E8C1TCD	1VMN23231

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that are not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25% D.....±0.5% F.....±1%

G.....±2% J.....±5% K.....±10%

M.....±20% N.....±30% Z.....+80/-20%

DVD MAIN CBA UNIT

Ref. No.	Description	Part No.
	DVD MAIN CBA UNIT	N7DFDKUP

MCV CBA

Ref. No.	Description	Part No.
	MCV CBA Consists of the following:	1VSA15014
	MAIN CBA (MCV-A) DVD OPEN/CLOSE CBA (MCV-C) SENSOR CBA	---------- ---------- 1VSA13493

MAIN CBA

Ref. No.	Description	Part No.
	MAIN CBA (MCV-A) Consists of the following:	----------
	CAPACITORS	
C013	ELECTROLYTIC CAP. 10µF/50V M H7	CE1JMASSL100
C018	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C020	ELECTROLYTIC CAP. 1000µF/10V M	CE1AMASDL102
C021	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C023	ELECTROLYTIC CAP. 100µF/16V M	CE1CMASDL101
C030	CERAMIC CAP.(AX) B K 0.068µF/50V	CA1J683TU011
C051	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C053	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASDL221
C301	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C302	CHIP CERAMIC CAP. CH J 390pF/50V	CHD1JJBCH391
C303	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
C304	CHIP CERAMIC CAP. CH J 100pF/50V	CHD1JJBCH101
C305	CHIP CERAMIC CAP. CH J 100pF/50V	CHD1JJBCH101
C307	CHIP CERAMIC CAP. F Z 1µF/10V	CHD1AZB0F105
C308	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C309	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C310	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMAVSL220
C311	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C312	CHIP CERAMIC CAP. F Z 1µF/10V	CHD1AZB0F105
C313	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL1R0
C314	CHIP CERAMIC CAP. F Z 1µF/10V	CHD1AZB0F105
C315	CHIP CERAMIC CAP. B K 0.1µF/25V	CHD1EKB0B104
C316	CHIP CERAMIC CAP. F Z 1µF/10V	CHD1AZB0F105
C317	CHIP CERAMIC CAP. F Z 1µF/10V	CHD1AZB0F105
C318	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMAVSL220
C319	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C320	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C324	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C327	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C328	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C329	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C330	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C331	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C332	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C333	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C336	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C339	CHIP CERAMIC CAP. B K 0.047µF/50V	CHD1JKB0B473
C340	CHIP CERAMIC CAP. B K 0.1µF/25V	CHD1EKB0B104
C341	CHIP CERAMIC CAP. B K 0.047µF/50V	CHD1JKB0B473
C342	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C343	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C346	CHIP CERAMIC CAP. B K 0.1µF/25V	CHD1EKB0B104
C391	ELECTROLYTIC CAP. 100µF/10V M H7	CE1AMASSL101
C392	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C401	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C402	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C403	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C404	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C405	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMAVSL220
C406	ELECTROLYTIC CAP. 33µF/6.3V M H7	CE0KMAVSL330
C407	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C408	CHIP CERAMIC CAP. B K 0.012µF/50V	CHD1JKB0B123
C409	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C410	CHIP CERAMIC CAP. B K 2700pF/50V	CHD1JKB0B272
C411	CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JKB0B102
C412	ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMAVSL4R7
C413	CHIP CERAMIC CAP. B K 6800pF/50V	CHD1JKB0B682
C414	CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JKB0B102
C422	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C423	ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMAVSL221
C424	CERAMIC CAP. B K 470pF/100V	CCD2AKP0B471
C425	FILM CAP.(P) 0.018µF/100V J	CA2A183MS029
C430	CHIP CERAMIC CAP. CH J 56pF/50V	CHD1JJBCH560
C502	ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMAVSL221
C505	ELECTROLYTIC CAP. 22µF/10V M H7	CE1AMAVSL220
C507	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C508	CHIP CERAMIC CAP. B K 0.033µF/50V	CHD1JKB0B333
C509	ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMAVSL221
C513	CHIP CERAMIC CAP. CH D 10pF/50V	CHD1JDBCH100
C514	CHIP CERAMIC CAP. CH J 22pF/50V	CHD1JJBCH220
C515	CHIP CERAMIC CAP. CH J 18pF/50V	CHD1JJBCH180
C521	ELECTROLYTIC CAP. 47µF/25V M H7	CE1EMAVSL470
C522	CHIP CERAMIC CAP. B K 4700pF/50V	CHD1JKB0B472
C523	CHIP CERAMIC CAP. CH J 100pF/50V	CHD1JJBCH101
C525	CHIP CERAMIC CAP. B K 4700pF/50V	CHD1JKB0B472
C527	CHIP CERAMIC CAP. B K 0.047µF/50V	CHD1JKB0B473
C529	CHIP CERAMIC CAP. B K 0.022µF/50V	CHD1JKB0B223
C530	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C531	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C532	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C533	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470

Ref. No.	Description	Part No.
C534	CHIP CERAMIC CAP. B K 0.1µF/25V	CHD1EKB0B104
C535	ELECTROLYTIC CAP. 22µF/10V M H7	CE1AMAVSL220
C536	CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JKB0B102
C537	CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JKB0B102
C540	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C541	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C544	ELECTROLYTIC CAP. 100µF/6.3V H7	CE0KMAVSL101
C560	CHIP CERAMIC CAP. CH J 100pF/50V	CHD1JJBCH101
C703	ELECTROLYTIC CAP. 100µF/6.3V M H7	CE0KMASSL101
C704	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C707	FILM CAP.(P) 0.039µF/50V J	CA1J393MS029
C708	ELECTROLYTIC CAP. 0.22µF/50V M	CE1JMASDLR22
C709	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL1R0
C712	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C751	CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JKB0B222
C752	CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JKB0B222
C760	CHIP CERAMIC CAP. CH J 47pF/50V	CHD1JJBCH470
C766	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C772	ELECTROLYTIC CAP. 4.7µF/50V M H7	CE1JMAVSL4R7
C773	ELECTROLYTIC CAP. 4.7µF/50V M H7	CE1JMASSL4R7
C774	ELECTROLYTIC CAP. 47µF/25V M H7	CE1EMAVSL470
C780	CHIP CERAMIC CAP. B K 0.1µF/25V	CHD1EKB0B104
C781	CHIP CERAMIC CAP. B K 0.1µF/25V	CHD1EKB0B104
C1001⚠	ACROSS THE LINE CAP. 0.068µF/250V	CT2E683DC016
C1002	ELECTROLYTIC CAP. 22µF/50V M	CE1JMASDL220
C1003	CERAMIC CAP. B K 0.01µF/500V	CCD2JKP0B103
C1004	ELECTROLYTIC CAP. 220µF/200V M	CA2D221S6008
C1005	CERAMIC CAP. B K 120pF/500V	CCD2JKP0B121
C1006⚠	SAFETY CAP. 3300pF/250V	CCG2EMA0F332
C1007	ELECTROLYTIC CAP. 1000µF/6.3V M	CE0KMASDL102
C1008	CERAMIC CAP. B K 120pF/500V	CCD2JKP0B121
C1013	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C1014	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C1015	ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMAVSL221
C1023	CERAMIC CAP. B K 470pF/500V	CCD2JKS0B471
C1029	CERAMIC CAP.(AX) X K 2700pF/16V	CCA1CKT0X272
C1030	CERAMIC CAP.(AX) F Z 1µF/50V	CA1J105TU014
C1031	CERAMIC CAP.(AX) F Z 1µF/50V	CA1J105TU014
C1032	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C1033	CERAMIC CAP. YV Z 0.022µF/50V	CCD1JZSYV223
C1039	CERAMIC CAP.(AX) F Z 1µF/50V	CA1J105TU014
C1040	ELECTROLYTIC CAP. 100µF/6.3V M	CE0KMASDL101
C1042	ELECTROLYTIC CAP. 100µF/6.3V M H7	CE0KMASSL101
C1051	CERAMIC CAP.(AX) F Z 1µF/50V	CA1J105TU014
C1070	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C1082	ELECTROLYTIC CAP. 220µF/16V M H7	CE1CMASSL221
C1201	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C1202	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C1207	CHIP CERAMIC CAP. CH J 100pF/50V	CHD1JJBCH101
C1208	CHIP CERAMIC CAP. CH J 100pF/50V	CHD1JJBCH101
C1221	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C1222	ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C1223	CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JKB0B102
C1224	CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JKB0B102
C1245	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C1246	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C1247	ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C1249	ELECTROLYTIC CAP. 47µF/16V M H7	CE1CMAVSL470
C1351	CHIP CERAMIC CAP. B K 0.1µF/25V	CHD1EKB0B104
C1352	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C1354	CHIP CERAMIC CAP. CH J 100pF/50V	CHD1JJBCH101
C1355	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
C1359	CHIP CERAMIC CAP. CH D 10pF/50V	CHD1JDBCH100

Ref. No.	Description	Part No.
C1421	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C1422	CHIP CERAMIC CAP. B K 0.1µF/25V	CHD1EKB0B104
C1441	CHIP CERAMIC CAP. F Z 1µF/10V	CHD1AZB0F105
C1442	ELECTROLYTIC CAP. 1000µF/6.3V M	CE0KMASDL102
C1462	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASDL221
C1465	CHIP CERAMIC CAP. F Z 1µF/10V	CHD1AZB0F105
C1466	CHIP CERAMIC CAP. F Z 1µF/10V	CHD1AZB0F105
C1482	ELECTROLYTIC CAP. 220µF/6.3V M	CE0KMASDL221
C1523	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
C1524	ELECTROLYTIC CAP. 100µF/6.3V H7	CE0KMAVSL101
C1531	CHIP CERAMIC CAP. B K 0.01µF/50V	CHD1JKB0B103
C1532	ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMAVSL220
C2002	CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JKB0B102
C2004	ELECTROLYTIC CAP. 100µF/6.3V H7	CE0KMAVSL101
C2012	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHD1JZB0F104
	DIODES	
D013	RECTIFIER DIODE BA158	NDQZ000BA158
D015	SCHOTTKY BARRIER DIODE SB390	NDQZ000SB390
D016	SCHOTTKY BARRIER DIODE SB240-B/P	NDQZ000SB240
D019	PCB JUMPER D0.6-P5.0	JW5.0T
D031	ZENER DIODE MTZJT-7716B	QDTB00MTZJ16
D035	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D040	ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D052	ZENER DIODE MTZJT-7710B	QDTB00MTZJ10
D062	ZENER DIODE MTZJT-774.3C	QDTC0MTZJ4R3
D063	RECTIFIER DIODE 1N4005	NDQZ001N4005
D080	RECTIFIER DIODE 1N4005	NDQZ001N4005
D082	RECTIFIER DIODE 1N4005	NDQZ001N4005
D504	ZENER DIODE MTZJT-7718B	QDTB00MTZJ18
D555	LED MIE-534A2	NPZZM1E534A2
D564	LED(RED) 204HD/E	NPQZ00204HDE
D565	LED(RED) 204HD/E	NPQZ00204HDE
D566	LED(GREEN) 204-10GD/S957	NPQZ10GDS957
D567	LED(GREEN) 204-10GD/S957	NPQZ10GDS957
D571	LED(RED) 204HD/E	NPQZ00204HDE
D701	ZENER DIODE MTZJT-7733D	QDTD00MTZJ33
D777	ZENER DIODE MTZJT-775.6A	QDTA0MTZJ5R6
D1001	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1002	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1003	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1004	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1007	PCB JUMPER D0.6-P5.0	JW5.0T
D1008	SCHOTTKY BARRIER DIODE SB140	NDQZ000SB140
D1010	RECTIFIER DIODE BA158	NDQZ000BA158
D1011	RECTIFIER DIODE BA158	NDQZ000BA158
D1012	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1018	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1020	SCHOTTKY BARRIER DIODE SB140	NDQZ000SB140
D1021	PCB JUMPER D0.6-P5.0	JW5.0T
D1022	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1024	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1025	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D1036	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1037	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1038	RECTIFIER DIODE 1N4005	NDQZ001N4005
D1058	RECTIFIER DIODE 1N4005	NDQZ001N4005
D2001	LED(GREEN) 204-10GD/S957	NPQZ10GDS957
D2002	LED(GREEN) 204-10GD/S957	NPQZ10GDS957
	ICS	
IC301	IC Y/C/A LA71205M-MPB-E	QSZBA0RSY037
IC501	IC SYSCON 80PIN	QSZAA0RMS048
IC751	IC ANALOG MULTIPLEXER CD4053BNSR	NSZBA0TTY093

Ref. No.	Description	Part No.
IC1001⚠	PHOTOCOUPLER PS2561A-1(W)	QPEWPS2561A1
IC1002	VOLTAGE REGULATOR PQ1LAX95MSPQ	QSZBA0TSH053
IC1004	VOLTAGE REGULATOR PQ1LAX95MSPQ	QSZBA0TSH053
IC1201	IC OP AMP KIA4558P/P	NSZBA0SJY035
IC1402	DRIVER FOR DVD MM1637XVBE	QSZBA0TMM102
COILS		
L009	RADIAL TYPE CHOKE COIL CW68-470K-841040NP	LLBD00PKV023
L251	PCB JUMPER D0.6-P5.0	JW5.0T
L303	INDUCTOR(100µH K) LAP02TA101K	LLAXKATTU101
L304	RADIAL TYPE CHOKE COIL CW68-470K-841040NP	LLBD00PKV023
L305	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
L306	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
L400	INDUCTOR 22µH-K-26T	LLAXKATTU220
L421	INDUCTOR 47µH-K-5FT	LLARKBSTU470
L502	RADIAL TYPE CHOKE COIL CW68-470K-841040NP	LLBD00PKV023
L503	INDUCTOR 12µH-K-26T	LLAXKATTU120
L504	PCB JUMPER D0.6-P5.0	JW5.0T
L701	INDUCTOR 4.7µH-K-5FT	LLARKBSTU4R7
L771	PCB JUMPER D0.6-P5.0	JW5.0T
L1001⚠	LINE FILTER 27MH TLF14CB2730R4	LLBG00ZTU034
L1004	BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
L1020	RADIAL TYPE CHOKE COIL CW68-470K-841040NP	LLBD00PKV023
L1350	INDUCTOR(100µH K) LAP02TA101K	LLAXKATTU101
L1351	INDUCTOR(0.47µH K) LAP02TAR47K	LLAXKATTUR47
L1522	INDUCTOR 47µH-K-5FT	LLARKBSTU470
L2001	INDUCTOR(100µH K) LAP02TA101K	LLAXKATTU101
TRANSISTORS		
Q031	TRANSISTOR KTA1267-Y-AT/P	NQSYKTA1267P
Q052	NPN TRANSISTOR KRC103M-AT/P	NQSZKRC103MP
Q055	TRANSISTOR KTC3198-Y-AT/P	NQSYKTC3198P
Q056	TRANSISTOR KTC3203-Y-AT/P	NQSYKTC3203P
Q063	TRANSISTOR KTA1267-Y-AT/P	NQSYKTA1267P
Q064	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q301	TRANSISTOR KTA-1266-GR-AT/P	NQS4KTA1266P
Q302	TRANSISTOR KTC3193-Y-AT/P	NQSYKTC3193P
Q303	TRANSISTOR KTC3193-Y-AT/P	NQSYKTC3193P
Q391	TRANSISTOR KTA-1266-GR-AT/P	NQS4KTA1266P
Q421	TRANSISTOR KTA-1266-GR-AT/P	NQS4KTA1266P
Q422	TRANSISTOR KTC3203-Y-AT/P	NQSYKTC3203P
Q425	RES. BUILT-IN TRANSISTOR KRA103M-AT/P	NQSZ0KRA103M
Q426	CHIP TRANSISTOR RN1511(TE85R.F)	QQ2Z0RN1511F
Q501	TRANSISTOR KTC3199-BL-AT/P	NQS5KTC3199P
Q506	PHOTO TRANSISTOR PT204-6B-12	NPWZT2046B12
Q762	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q763	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q1001⚠	FET 2SK3543(Q)	QFWZ2SK3543Q
Q1003	TRANSISTOR 2SC1815-Y(TE2 F T)	QQSY2SC1815F
Q1004	TRANSISTOR 2SC2001-T-A-K	QQSK2SC2001A
Q1005	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q1006	TRANSISTOR KTA1267-Y-AT/P	NQSYKTA1267P
Q1008	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q1011	TRANSISTOR KTC3203-Y-AT/P	NQSYKTC3203P
Q1201	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q1202	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q1204	TRANSISTOR KTA-1266-GR-AT/P	NQS4KTA1266P
Q1351	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q2002	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P
Q2003	NPN TRANSISTOR KRC103M-AT/P	NQSZKRC103MP
Q2013	TRANSISTOR KTC3199-Y-AT/P	NQSYKTC3199P

Ref. No.	Description	Part No.
RESISTORS		
R001⚠	GLASS GLAZE RES. 1/2W J 3.3M Ω	RXX2JZLZ0335
R031	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R032	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R034	CHIP RES. 1/10W F 2.2k Ω	RRXAFB5H2201
R038	CARBON RES. 1/4W J 270 Ω	RCX4JATZ0271
R039	CHIP RES. 1/10W F 4.7k Ω	RRXAFB5H4701
R041	CHIP RES. 1/10W J 18k Ω	RRXAJB5Z0183
R042	CHIP RES. 1/10W J 1.8k Ω	RRXAJB5Z0182
R056	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R057	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R058	CHIP RES. 1/10W J 180 Ω	RRXAJB5Z0181
R063	PCB JUMPER D0.6-P5.0	JW5.0T
R066	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R067	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R068	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R069	CHIP RES. 1/10W J 47k Ω	RRXAJB5Z0473
R073	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R075	CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R092	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R095	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R301	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R302	CHIP RES. 1/10W J 12k Ω	RRXAJB5Z0123
R304	CHIP RES. 1/10W J 1.2k Ω	RRXAJB5Z0122
R306	CHIP RES. 1/10W J 3.9M Ω	RRXAJB5Z0395
R307	CHIP RES. 1/10W J 100k Ω	RRXAJB5Z0104
R308	CHIP RES. 1/10W J 82k Ω	RRXAJB5Z0823
R309	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R310	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R311	CHIP RES. 1/10W J 1.8k Ω	RRXAJB5Z0182
R312	CHIP RES. 1/10W J 1.8k Ω	RRXAJB5Z0182
R313	CHIP RES. 1/10W J 1.8k Ω	RRXAJB5Z0182
R314	CHIP RES. 1/10W J 680k Ω	RRXAJB5Z0684
R315	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R316	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R317	CHIP RES. 1/10W J 8.2k Ω	RRXAJB5Z0822
R318	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R319	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R320	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R321	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R322	CHIP RES. 1/10W J 18k Ω	RRXAJB5Z0183
R323	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R324	CHIP RES. 1/10W J 18k Ω	RRXAJB5Z0183
R327	CHIP RES. 1/10W F 1.1k Ω	RRXAFB5Z1101
R330	CHIP RES. 1/10W J 100k Ω	RRXAJB5Z0104
R391	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R392	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R397	CHIP RES. 1/10W J 100 Ω	RRXAJB5Z0101
R401	CHIP RES. 1/10W J 27k Ω	RRXAJB5Z0273
R402	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R403	CHIP RES. 1/10W J 27k Ω	RRXAJB5Z0273
R404	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R405	CHIP RES. 1/10W J 27k Ω	RRXAJB5Z0273
R406	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R409	CHIP RES. 1/10W J 8.2k Ω	RRXAJB5Z0822
R410	CHIP RES. 1/10W J 12k Ω	RRXAJB5Z0123
R411	CHIP RES. 1/10W J 330k Ω	RRXAJB5Z0334
R412	CHIP RES. 1/10W F 130 Ω	RRXAFB5H1300
R413	CHIP RES. 1/10W J 22k Ω	RRXAJB5Z0223
R414	CHIP RES. 1/10W J 910 Ω	RRXAJB5Z0911
R415	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R416	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103

Ref. No.	Description	Part No.
R421	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R422	CHIP RES. 1/10W J 22k Ω	RRXAJB5Z0223
R424	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R425	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R426	CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R470	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R476	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R502	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R503	CHIP RES. 1/10W J 820 Ω	RRXAJB5Z0821
R504	CHIP RES. 1/10W J 100k Ω	RRXAJB5Z0104
R506	CHIP RES. 1/10W J 100k Ω	RRXAJB5Z0104
R508	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R511	CHIP RES. 1/10W J 39k Ω	RRXAJB5Z0393
R512	CHIP RES. 1/10W J 100 Ω	RRXAJB5Z0101
R518	CHIP RES. 1/10W J 220k Ω	RRXAJB5Z0224
R523	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R524	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R525	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R526	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R527	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R528	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R530	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R531	CARBON RES. 1/6W G 4.7k Ω	RCX6GATZ0472
R532	CARBON RES. 1/6W G 1.5k Ω	RCX6GATZ0152
R533	CARBON RES. 1/6W G 22k Ω	RCX6GATZ0223
R534	CARBON RES. 1/6W G 470 Ω	RCX6GATZ0471
R535	CARBON RES. 1/6W G 10k Ω	RCX6GATZ0103
R536	CARBON RES. 1/6W G 3.6k Ω	RCX6GATZ0362
R537	CHIP RES. 1/10W J 33k Ω	RRXAJB5Z0333
R540	CHIP RES. 1/10W J 390k Ω	RRXAJB5Z0394
R541	CHIP RES. 1/10W J 390k Ω	RRXAJB5Z0394
R542	CARBON RES. 1/4W J 270 Ω	RCX4JATZ0271
R543	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R544	CHIP RES. 1/10W J 18k Ω	RRXAJB5Z0183
R545	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R546	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R551	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R552	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R557	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R559	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R563	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R566	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R568	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R573	CARBON RES. 1/4W J 120 Ω	RCX4JATZ0121
R574	CARBON RES. 1/4W J 120 Ω	RCX4JATZ0121
R580	CARBON RES. 1/4W J 560 Ω	RCX4JATZ0561
R585	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R586	CHIP RES. 1/10W J 1.2k Ω	RRXAJB5Z0122
R587	CHIP RES. 1/10W J 1.5k Ω	RRXAJB5Z0152
R588	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R590	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R591	CHIP RES. 1/10W J 1.2k Ω	RRXAJB5Z0122
R593	CHIP RES. 1/10W J 1.8k Ω	RRXAJB5Z0182
R594	CHIP RES. 1/10W J 1.8k Ω	RRXAJB5Z0182
R606	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R607	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R610	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R612	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R618	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R620	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R625	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R701	CHIP RES. 1/10W J 330 Ω	RRXAJB5Z0331
R702	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182

Ref. No.	Description	Part No.
R703	CHIP RES. 1/10W J 47k Ω	RRXAJB5Z0473
R704	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R705	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R752	CHIP RES. 1/10W J 75 Ω	RRXAJB5Z0750
R753	CHIP RES. 1/10W J 75 Ω	RRXAJB5Z0750
R756	CHIP RES. 1/10W J 47k Ω	RRXAJB5Z0473
R757	CHIP RES. 1/10W J 47k Ω	RRXAJB5Z0473
R758	CARBON RES. 1/6W J 75 Ω	RCX6JATZ0750
R774	CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R777	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R783	CHIP RES. 1/10W J 100k Ω	RRXAJB5Z0104
R784	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R786	CHIP RES. 1/10W J 100k Ω	RRXAJB5Z0104
R787	CHIP RES. 1/10W J 4.7k Ω	RRXAJB5Z0472
R788	PCB JUMPER D0.6-P5.0	JW5.0T
R789	PCB JUMPER D0.6-P5.0	JW5.0T
R1004	METAL OXIDE FILM RES. 2W J 82k Ω	RN02JZLZ0823
R1005	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R1006	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R1007	PCB JUMPER D0.6-P5.0	JW5.0T
R1008	CARBON RES. 1/6W G 1k Ω	RCX6GATZ0102
R1010	CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R1011	METAL OXIDE FILM RES. 1W J 0.68 Ω	RN01R68ZU001
R1020	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R1025	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R1026	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R1029	CARBON RES. 1/6W J 150k Ω	RCX6JATZ0154
R1030	CARBON RES. 1/4W J 150 Ω	RCX4JATZ0151
R1032	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R1034	CARBON RES. 1/4W J 680k Ω	RCX4JATZ0684
R1035	METAL OXIDE FILM RES.(STRAIGHT 2W J 1.2 Ω	RN02JZLZ01R2
R1036	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R1037	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R1038	CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R1039	CARBON RES. 1/6W J 470k Ω	RCX6JATZ0474
R1043	METAL OXIDE FILM RES. 1W J 2.7 Ω	RN012R7ZU001
R1044	CHIP RES. 1/10W J 220k Ω	RRXAJB5Z0224
R1059	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R1068	CARBON RES. 1/4W J 390 Ω	RCX4JATZ0391
R1076	CHIP RES. 1/10W J 22k Ω	RRXAJB5Z0223
R1077	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R1085	CHIP RES. 1/10W J 100 Ω	RRXAJB5Z0101
R1086	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R1087	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R1090	CHIP RES. 1/10W J 5.6k Ω	RRXAJB5Z0562
R1091	CHIP RES. 1/10W J 3.3k Ω	RRXAJB5Z0332
R1205	PCB JUMPER D0.6-P5.0	JW5.0T
R1206	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R1207	CHIP RES. 1/10W J 3.3k Ω	RRXAJB5Z0332
R1208	CHIP RES. 1/10W J 3.3k Ω	RRXAJB5Z0332
R1209	CHIP RES. 1/10W F 22k Ω	RRXAFB5H2202
R1210	CHIP RES. 1/10W F 22k Ω	RRXAFB5H2202
R1221	CHIP RES. 1/10W J 100k Ω	RRXAJB5Z0104
R1222	CHIP RES. 1/10W J 100k Ω	RRXAJB5Z0104
R1223	CHIP RES. 1/10W J 470 Ω	RRXAJB5Z0471
R1224	CHIP RES. 1/10W J 470 Ω	RRXAJB5Z0471
R1225	CHIP RES. 1/10W J 1k Ω	RRXAJB5Z0102
R1226	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R1238	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R1240	CHIP RES. 1/10W J 100k Ω	RRXAJB5Z0104
R1245	CARBON RES. 1/6W J 10 Ω	RCX6JATZ0100
R1351	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222

Ref. No.	Description	Part No.
R1352	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R1353	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R1354	CHIP RES. 1/10W J 220 Ω	RRXAJB5Z0221
R1355	CHIP RES. 1/10W J 75 Ω	RRXAJB5Z0750
R1395	CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R1421	CHIP RES.(1608) 1/10W F 75 Ω	RRXAFB5H75R0
R1422	CHIP RES. 1/10W J 75 Ω	RRXAJB5Z0750
R1441	CHIP RES.(1608) 1/10W F 75 Ω	RRXAFB5H75R0
R1442	CHIP RES. 1/10W J 75 Ω	RRXAJB5Z0750
R1443	CHIP RES. 1/10W J 75 Ω	RRXAJB5Z0750
R1461	CHIP RES.(1608) 1/10W F 75 Ω	RRXAFB5H75R0
R1462	CHIP RES. 1/10W J 75 Ω	RRXAJB5Z0750
R1481	CHIP RES.(1608) 1/10W F 75 Ω	RRXAFB5H75R0
R1482	CHIP RES. 1/10W J 75 Ω	RRXAJB5Z0750
R1490	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R1521	CHIP RES. 1/10W J 2.2k Ω	RRXAJB5Z0222
R2005	CHIP RES. 1/10W J 6.8k Ω	RRXAJB5Z0682
R2007	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R2008	CHIP RES. 1/10W J 3k Ω	RRXAJB5Z0302
R2009	CHIP RES. 1/10W J 3.3k Ω	RRXAJB5Z0332
R2010	CHIP RES. 1/10W J 5.6k Ω	RRXAJB5Z0562
R2011	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R2012	CHIP RES. 1/10W J 33k Ω	RRXAJB5Z0333
R2013	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
R2028	CHIP RES. 1/10W J 10k Ω	RRXAJB5Z0103
R2031	CHIP RES. 1/10W J 22k Ω	RRXAJB5Z0223
R2051	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R2052	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R2053	CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
R2054	CARBON RES. 1/4W J 180 Ω	RCX4JATZ0181
	SWITCHES	
SW501	TACT SWITCH KSM0614B	SST0101HH013
SW502	TACT SWITCH KSM0614B	SST0101HH013
SW505	TACT SWITCH KSM0614B	SST0101HH013
SW508	TACT SWITCH KSM0614B	SST0101HH013
SW509	TACT SWITCH KSM0614B	SST0101HH013
SW511	LEAF SWITCH MXS01830MVP0	SSC0101MCE03
SW512	ROTARY MODE SWITCH SSS-53MD	SSR0106KB003
SW513	TACT SWITCH KSM0614B	SST0101HH013
SW514	TACT SWITCH KSM0614B	SST0101HH013
SW515	TACT SWITCH KSM0614B	SST0101HH013
SW516	TACT SWITCH KSM0614B	SST0101HH013
SW2002	TACT SWITCH KSM0614B	SST0101HH013
SW2003	TACT SWITCH KSM0614B	SST0101HH013
SW2005	TACT SWITCH KSM0614B	SST0101HH013
SW2006	TACT SWITCH KSM0614B	SST0101HH013
	MISCELLANEOUS	
2B11	HEAD SHIELD H9600UD	0VM306770
2B15	BUSH LED(F) H3700UD	0VM409508
2L062	SCREW B-TIGHT M3X8 BIND HEAD+	GBHB3080
2L082	SCREW S-TIGHT M3*5 BIND+ 3*5 BIND+	GBHS3050
A4	JACK BOARD(TUNER) H9600UD	0VM306675
A5	JACK BOARD(RCA) H9610UD	0VM306766
AC1001⚠	AC CORD W/O A GND WIRE UL/CSA 1770 BLACK	WAC0172LTE17
F1001⚠	FUSE TIME RAG SIC 1A 250V UC PSE	PEG20C0W3002
FH1001	FUSE HOLDER MSF-015 LF (B110)	XH01Z00LY002
FH1002	FUSE HOLDER MSF-015 LF (B110)	XH01Z00LY002
JC23	CHIP RES.(1608) 1/10W 0 Ω	RRXAZB5Z0000
JK751	RCA JACK MSP-283V-B-324NILF01	JXRL040LY141
JK752	RCA JACK MSP-282V-14 NI FE LF	JXRL030LY137
JK753	RCA JACK MSP-281V42-B(B110)	JXRL010LY142
JK755	RCA JACK MSP-281V40-B(B110)	JXRL010LY138
JK756	RCA JACK 2P MSP-282V-12 NILF(B11	JXRL020LY121
JK1202	RCA JACK MSP-281V41-B(B110)	JXRL010LY140
JK1401	S TYPE JACK MDC-050V-2.4 LF(B110	JXEL040LY003
JK1403	RCA JACK MSP-283V-B-752 NI LF	JXRL040LY122
RM2001	REMOTE RECEIVER PIC-37042LU	USESJRSKK033
T001⚠	SWITCHING TRANSFOMER BCK-28-0550	LTT00CPXB017
TP301	PCB JUMPER D0.6-P16.5	JW16.5T
TP302	PCB JUMPER D0.6-P16.0	JW16.0T
TP506	PCB JUMPER D0.6-P8.0	JW8.0T
TP507	PCB JUMPER D0.6-P7.0	JW7.0T
TP513	PCB JUMPER D0.6-P7.5	JW7.5T
TP751	PCB JUMPER D0.6-P23.5	JW23.5T
TP753	PCB JUMPER D0.6-P25.5	JW25.5T
TP754	PCB JUMPER D0.6-P22.5	JW22.5T
TU701	TUNER UNIT VH025AFE	UTUNNTUSP026
VR501	CARBON P.O.T. VZ067TL1 B104 PB(F)	VRCB104HH014
W002	WIRE ASSEMBLY FFC 21P 21 240 WHITE	WX1E8C00-002
W006	WIRE ASSEMBLY FFC 13 192 WHITE	WX1E8A00-005
X301	XTAL 3.579545MHz(20PPM)	FXC355LLN004
X502	XTAL DT38 32.768kHz	FX0323LDS001

DVD OPEN/CLOSE CBA

Ref. No.	Description	Part No.
	DVD OPEN/CLOSE CBA (MCV-C) Consists of the following:	---------
	SWITCH	
SW2001	TACT SWITCH KSM0614B	SST0101HH013
	MISCELLANEOUS	
W011	WIRE ASSEMBLY 02 130 GRAY	WX1E8A00-001

SENSOR CBA

Ref. No.	Description	Part No.
	SENSOR CBA Consists of the following:	1VSA13493
	TRANSISTORS	
Q503	PHOTO TRANSISTOR PT204-6B-12	NPWZT2046B12
Q504	PHOTO TRANSISTOR PT204-6B-12	NPWZT2046B12

CWV806
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2006-10-17